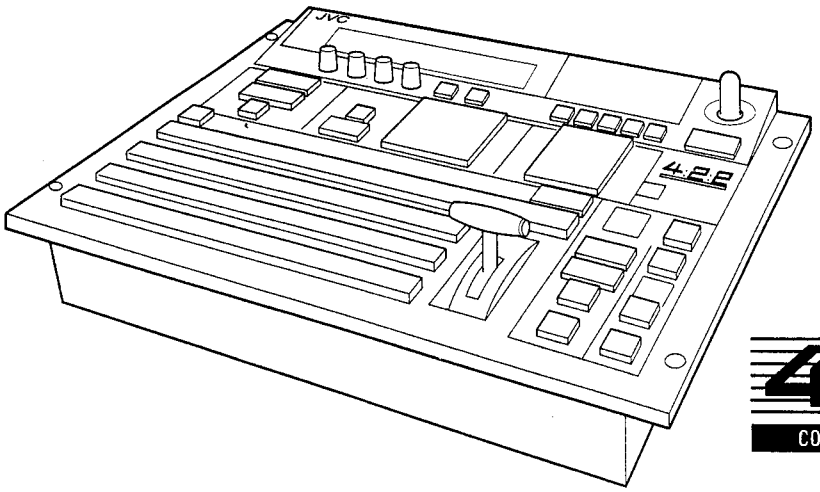
JVC Instructions

COMPONENT DIGITAL VISION MIXER

KM-5000



4:2:2
COMPONENT DIGITAL

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Warning Notice
FOR YOUR SAFETY

To ensure safe opration the three-pin plug supplid must be inserted only into a standard three-pin power point whitch is effectively grounded through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth ground. Wrongly wired extention cord are a major cause of fatalities. The fact that the exuipment operates satisfactorily does not imply that the power point is properly ground and that the installation is completely safe. For your safety, if in any doubt about the correct grounding of the power point, consult a qualified electrician.

WARNING—THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in this mains lead are colored in accordance with the following code:

GREEN-AND-YELLOW :	EARTH
BLUE :	NEUTRAL
BROWN :	LIVE

As the colors of the wires in the mains lead of this apparatus may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.The wire which is colored GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by safety earth symbol ⏚ or coloredGREEN or GREEN-AND-YELLOW.The wire which is colored BLUE must be connected to the terminal which is marked with the letter N or colored BLACK.The wire whichis colored BROWN must be connected to the terminal which is marked with the letter L or colored RED.

CONTAIN NICKEL-CADMIUM BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.

Thank you for purchasing the JVC KM-5000 Component Digital Vision Mixer.

To Utilize this product to its fullest, please read this instruction booklet carefully and entirely for the best understanding of its capabilities and operation.

PRECAUTIONS

Safety Precautions

- Use only with the rated power supply.
- Do not modify the unit or operate it with its cover removed.
- Do not allow flammable objects, water or metallic objects to get inside the unit as they could cause damage and malfunctions.
- When not to be used for a long period of time, disconnect the power cord from the power outlet.
- When there is any abnormality (noise, smoke, etc.), immediately switch off, disconnect the power cord from the power outlet, and contact your nearest JVC-authorized service agent.

Handling and storage precautions

- To extend the unit's service life, avoid using the KM-5000 under the following conditions:
  - in extremely hot, cold or humid places,
  - in dusty places,
  - near appliances generating strong magnetic fields,
  - in places subject to vibrations
  - in poorly ventilated places.
- When installing or moving the KM-5000, do not apply violent vibrations and shocks to the unit.
- When the power supply or voltage is too high or too low, the unit's service life may be shortened and it may not achieve its optimum performance.
- A cooling fan is provided in the side panel.
  When mounting the unit in a rack, etc., assure sufficient ventilation space.
- Do not apply strong force to the fader lever or handle it roughly.

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8. SPECIFICATIONS

1. GENERAL

This chapter gives an overview of the basic structure of the KM-5000 including its components and bus configuration. We recommend that users not familiar with this type of unit read this chapter carefully as it also provides general definitions of specific technical terms used in other parts of the text.

1.1 Components

1.1.1 Basic Structure

Two-Unit Structure

The KM-5000 is a two-unit structure consisting of a main unit (KM-5000M) and a control unit (KM-5000P). Each unit is entirely self-contained, meaning that it is possible to control all the functions of the main unit externally without using the control unit. However, the name, KM-5000, is usually used in reference to the complete system consisting of both the main and control units.

Multi-Format Input/Output

The KM-5000's internal processing is performed using the 4:2:2 component digital processing (CCIR-656) standard. However, input/output signals are multi-format-compatible, allowing the KM-5000 to handle four different types of video signal; serial digital, parallel digital, analog component, and analog composite. Input and output modules for the various formats are optionally available so you can customize the KM-5000 to meet your own format requirements.
I/O modules are preset at the factory as shown in the table below.

Table 1-1

I/O	Signal designation	Depends on type of module
Input	Test signal generator	Standard
	Back color generator	Standard
	Channel 1 — 12	Optional input module
	External key input 1-6	Optional input module
Output	PGM1	Optional output module
	PGM2	Serial digital output module Standard-equipped for KM-BK5013
	PGM3	Analog component output module Standard-equipped for KM-BK5011
	PVW	Analog composite output module Standard-equipped for KM-BK5012
	AUX1, AUX2	Optional output module
	KEY	Optional output module

1.1.2 Optional Input Module

The table below shows the list of optional input modules. Since each input module incorporates an automatic phase adjuster, you do not have to concern yourself with the phase of input signals.

- The automatically adjustable phase range is –64.0 μsec (advance) to +62.5 μsec (delay).

Table 1-2

Designation	Model No.	Remarks
Analog component input module	KM-BK5001	
Analog composite input module	KM-BK5002	
Serial digital input module	KM-BK5003	
Parallel digital input module	KM-BK5004	
Analog key input module	KM-BK5005	

1.1.3 Optional Output Module

The table below shows the list of optional output modules.

Table 1-3

Designation	Model No.	Remarks
Analog component output module	KM-BK5011	2-line
Analog composite output module	KM-BK5012	2-line
Serial digital output module	KM-BK5013	3-line
Parallel digital output module	KM-BK5014	2-line
Analog key output module	KM-BK5015	1-line

1.2 Video Bus Configuration

The KM-5000 has seven different versatile video buses and a bus dedicated to external key. Video input signals to the KM-5000 can be freely allocated to these bus lines.

The versatile video buses are outlined as follows.

1) Program background bus : Handles the base video to be fed to the program line.
2) Preset background bus : Handles the video exchangeable with the program bus video.
3) Key bus : For key fill and key source selection.
4) DSK bus : For DSK fill and DSK source selection.
5) AUX bus 1 : Versatile bus to handle the signal to be sent to an external unit.
6) AUX bus 2 : Versatile bus to handle the signal to be sent to an external unit.
7) DSK background bus : For DSK background selection

Video input to each bus can be selected from among the 12 video inputs, as well as from black (switchable to the built-in signal generator), and back color. The video signal from the M/E sender cluster is normally selected when it is for use on the DSK background bus. AUX buses 1/2 are able to receive M/E, PGM and PVW video signal.

The external key dedicated bus is used for external key source selection. Input video to this bus is separate from those to the versatile video signal buses and can be selected from 1 - 6 external key inputs.

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1.3 Signal Path

Video signal paths are shown in the following diagram.

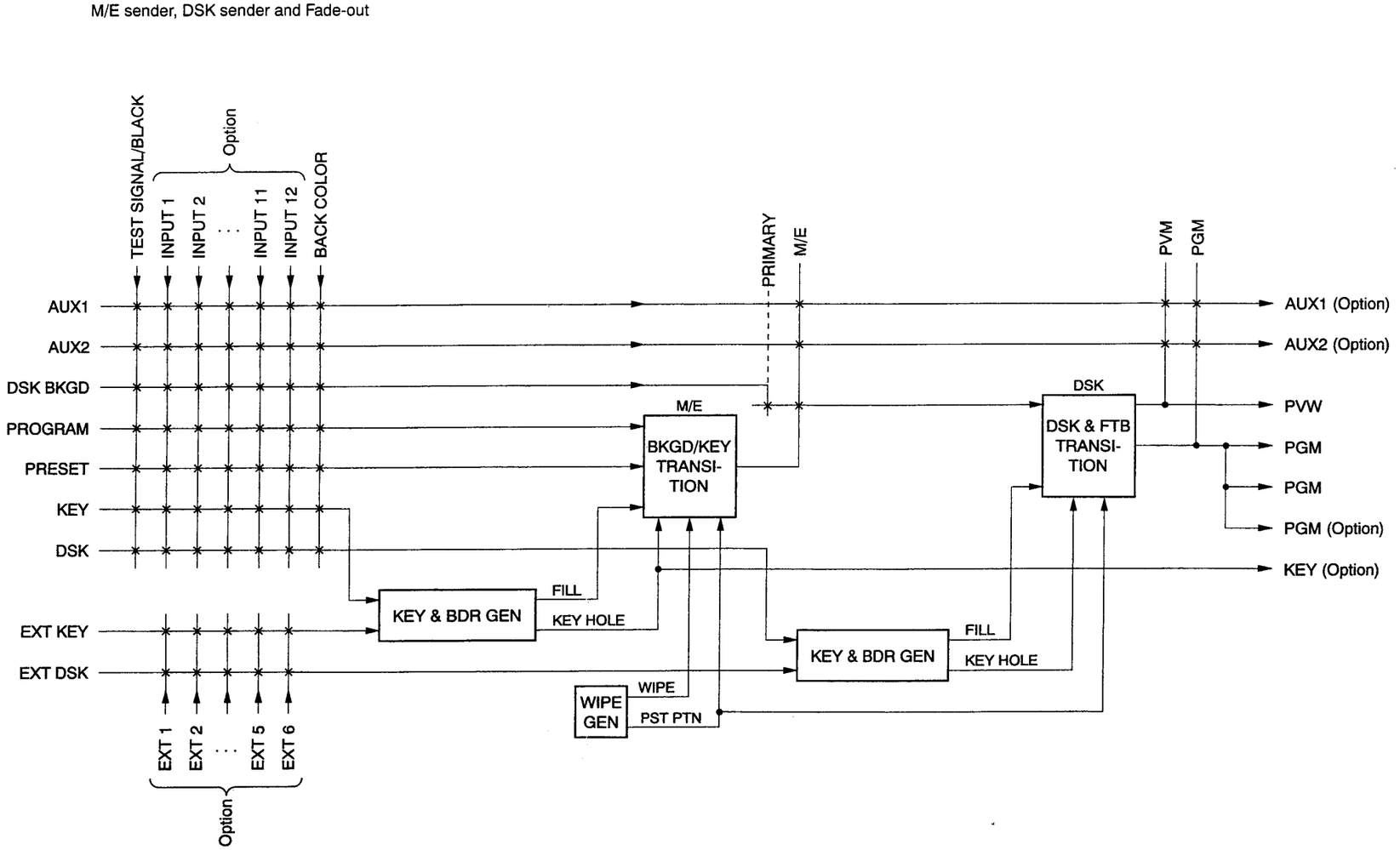


Fig. 1-1

1.4 Special Effects Available

The KM-5000 offers special effects that can be applied to input video signals at each of the M/E sender, DSK sender, and Fade-out clusters.

1.4.1 Special Effects at the M/E Sender Cluster

Effects are available for the program background bus, the preset background bus, and the key bus. Video on the program bus, which is usually output to the primary line, can be switched with the preset bus video using such effects as wipe and mix, or can be keyed with the key bus video.

Refer to the later description for keying.

Transition

Switching and keying in/out operations are referred to as transitions. Video switching between program and preset backgrounds is called a **BACKGROUND TRANSITION** and keying in/out operation a **KEY TRANSITION**. Transitions can be accomplished either manually using the fader lever or automatically.

Transition combination

Background transitions and key transitions can be performed separately or concurrently. Example of separate transition: a program bus video with a telop keyed in can be exchanged with a preset bus video with the telop holding on as it is.

Example of concurrent transition: a program bus video with a telop keyed in is regarded as one integral image, which can be switched with the preset bus video and vice versa.

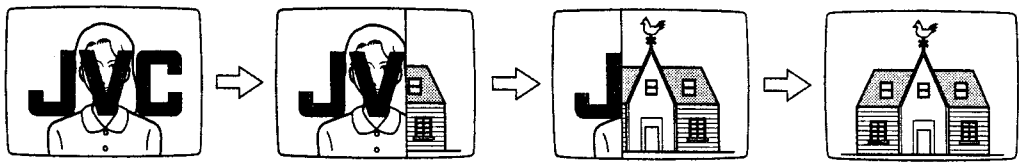


Fig. 1-2

Flip-flop operation

Background transition takes place with a flip-flop operation of the bus. Flip-flop operation refers to an automatic simultaneous switching between the program bus select button and the preset bus select button simultaneously as soon as the transition operation is complete.

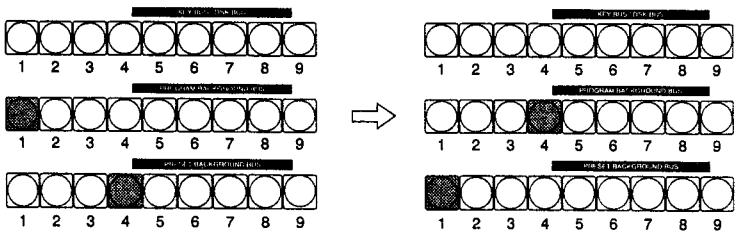


Fig. 1-3 Flip-flop operation

1.4.2 Effect at the DSK Sender Cluster

DSK stands for Down Stream Keyer. This is used to key to a video immediately before it is output to the primary bus line. With the KM-5000, the DSK effect is available for the video at the M/E sender cluster.

The KM-5000's DSK fucntions the same way as the key transition at the M/E sender cluster, except that keying in/out is only performed automatically.

1.4.3 Effect at the Fade-out Cluster

Fade-in/out of a primary bus video is available. Automatic operation only.

1.5 Keying Effects

Keying cuts out a portion of the video signal and fills the gap with a separate signal. The signal source being cut out is called a key source and the filling image a key fill.

The KM-5000 offers keying at the M/E sender and DSK sender clusters. Keying facilities at the M/E and DSK senders are equal to each other. When keying is carried out at both senders simultaneously, the video keyed at the M/E sender is hidden beneath the signal at the DSK, i.e., the DSK sender takes priority over the M/E sender. The KM-5000 allows you to make it appear as if the priority has been reversed by switching the keying settings between the M/E and the DSK.

The keying facilities available with the KM-5000 are outlined below.

External key

Keying with the luminance component of an external key input as the key source. An external key input module is optionally available.

Luminance key

Keying with the luminance component of the key bus or DSK bus video as the key source.

Chroma key

Keying with the chroma component of the key bus or DSK bus video as the key source.

Preset Pattern key

Keying with a fixed-size dedicated wipe pattern as the key source.

Fill color

A desired color signal, instead of the key source itself, can be used as a key fill.

Border

The key fill can be trimmed with a border, drop shadow, or outline.

Masking

An unnecessary part of a key source can be masked. The masking pattern is the shape of a box frame whose size and position can be freely adjusted.

B/W (monochrome) effect and spot effect

When the key source itself is used as a key fill, the B/W effect and the spot effect are available. The former makes the key fill signal black/white and the latter reduces the key fill video signal level by half.

Key memory

Keying setting can be done separately for each input, and independently on the key bus and DSK bus. Setting data remains stored in the KM-5000's memory even when the power is off. There is no need to re-set the unit each time the power is turned on.

Key exchange

Keying priority looks as if reversed by exchanging the key settings between M/E and DSK. Key exchange can be done also with GPI to be later described.

Key looping

A dedicated output for the key source processed at the M/E sender is optionally available. This makes possible sophisticated video processing without using an external routing switcher. For example, the key source output can be processed at the DVE together with the key fill selected at the AUX output and fed back to the KM-5000 for keying at the DSK.

1.6 Other Functions

Event memory

Control panel settings are stored in memory for later use. Up to 16 different settings can be stored in the main unit's memory. A memory battery is provided, ensuring that stored settings are held even when the power is off.

Color memory

Once set, the color setting is stored in memory for later use. 9 preset colors and 23 user-created colors are available. A memory battery is provided, ensuring that stored settings are held even when the power is off.

Wipe pattern effects

Effects applicable to wipe patterns include border, softness and aspect.

Independent 6-color signal generator

Color can be set independently for back color, key matte, DSK matte, key boarder color, DSK border color and wipe board color. Horizontal or vertical gradation can also be added to back color.

Fader limit function

During transitions at the M/E sender, transition progress can be stopped at any point.

Serial communications control

All the KM-5000's functions can be externally controlled via serial communications, for instance with a video editor or a personal computer. Two input terminals are provided for connection of external control units.
The communciations protocol used by the KM-5000 is compatible with the Grass Valley Group's Model 100 protocol used by many video editors.

Audio interface

The KM-5000 can be used with the JVC audio mixer MI-3000 via the JVC auto fader MI-F30.

GPI function

The KM-5000 can be externally triggered to start automatic operation.

Tally output

Tally output terminals are provided.

Improper color signal prohibited

The levels of internally generated color signals are monitored to prohibit any color signal exceeding a predetermined level.

3 types of test signal

Three types of test signal are available.

3 types of wipe code system

In addition to the KM-5000's wipe codes, existing wipe codes for the JVC KM-3000 and Grass Valley Group's Model 100 can also be used when selecting wipe identification codes.

2. INSTALLATION

This chapter explains how to install the control unit and the main unit. Installation of optional input/output modules is also covered.

•The mounting screws required for installation are not provided as the type and number required depend on the console or rack you are using.

2.1 Installation of the Control Unit

Although the KM-5000P control unit is basically designed for table-top use, it can be easily mounted in an EIA-standard rack or control console without significant modification. Mount the unit referring to the dimensional diagrams.
The holes for installation screws are covered with rubber pads. Remove the pads and securely mount the control unit with the screws. Re-apply the rubber pads after installation.

- Do not use the fader lever to lift the control unit. Doing so will damage the fader lever.
- Use screws with a head diameter of 9 mm or less.

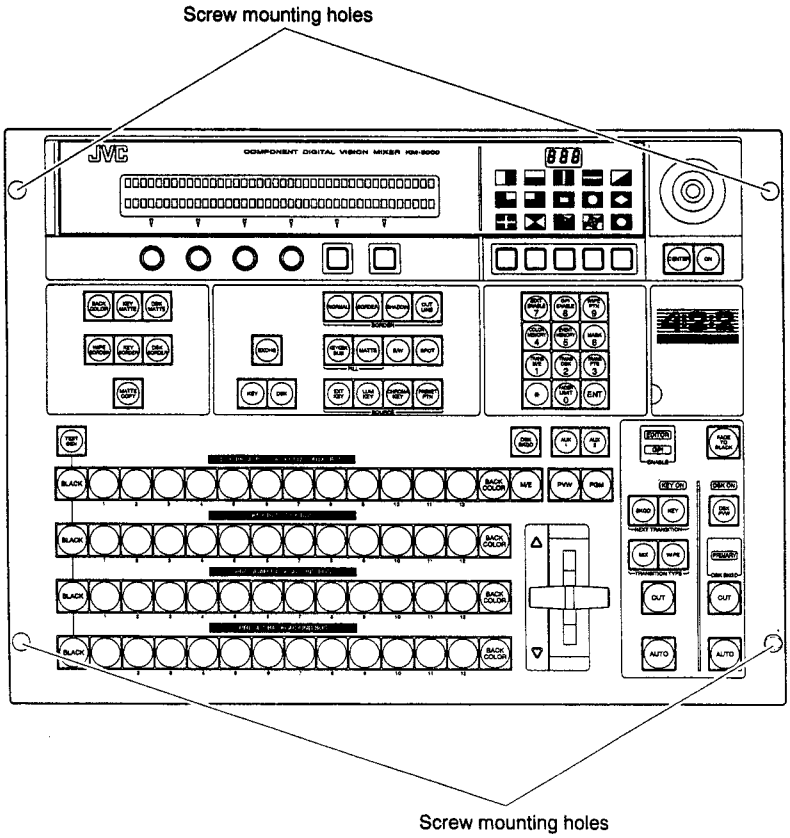


Fig. 2-1 Screw mounting holes

2.2 Main Unit Installation

Screw holes in the side panel of the KM-5000M main unit allow installation in an EIA 19" rack. Follow the procedures below for mounting.

(1) Remove the screws securing the four rubber feet at the bottom of the main unit. Remove the rubber feet.

(2) Secure the inner member of the slide rail to either side of the main unit.

(3) Secure the slide rail outer member to the rack (Refer to the slide rail's mounting instructions of the slide rail for details).

(4) Align the inner member at the main unit with the outer member on the rack and mount the main unit on the rack.

(5) Secure the main unit to the rack by fixing screws through the holes at the main unit main panel.

- Accuride slide rails can be used. (Model C-305-20, Slide length 20")
- Make sure that the rack is deep enough to leave room for wiring.
- The use of a rack with fan-assisted heat dissipation capability is recommended.

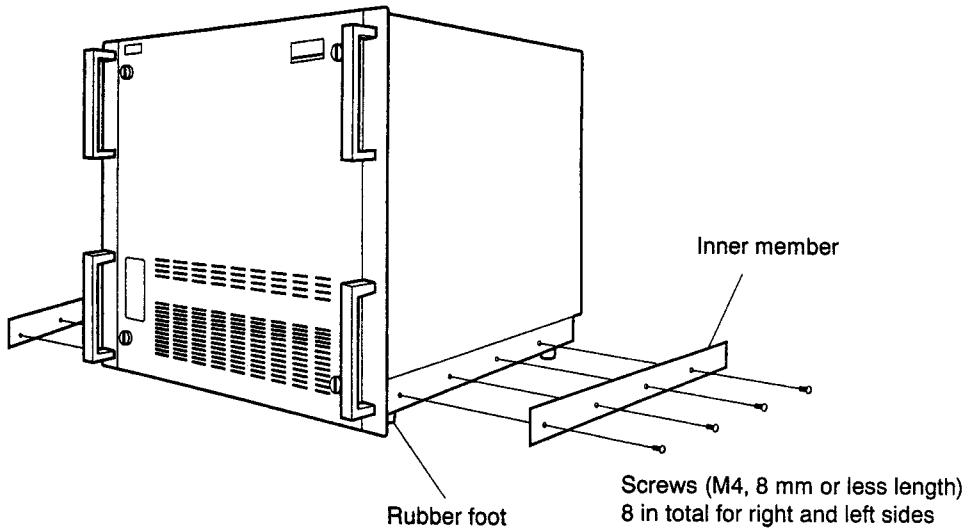
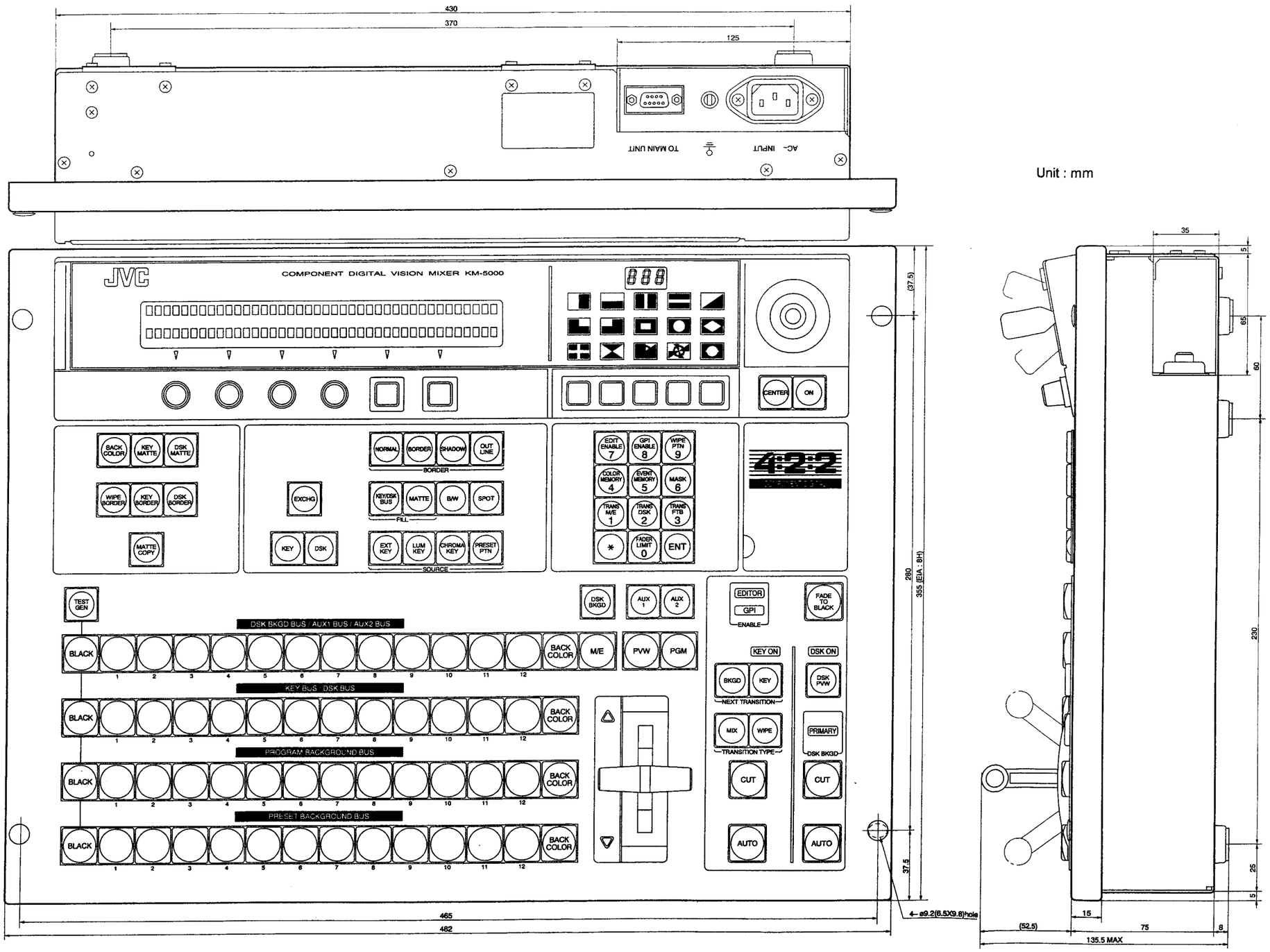
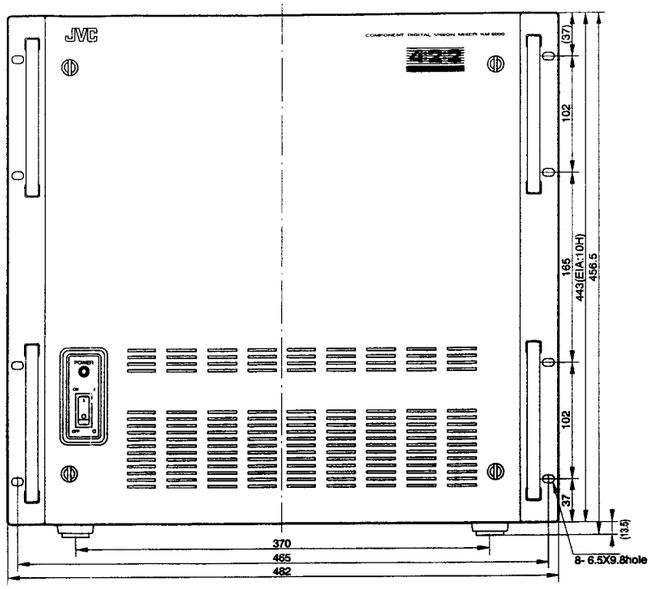


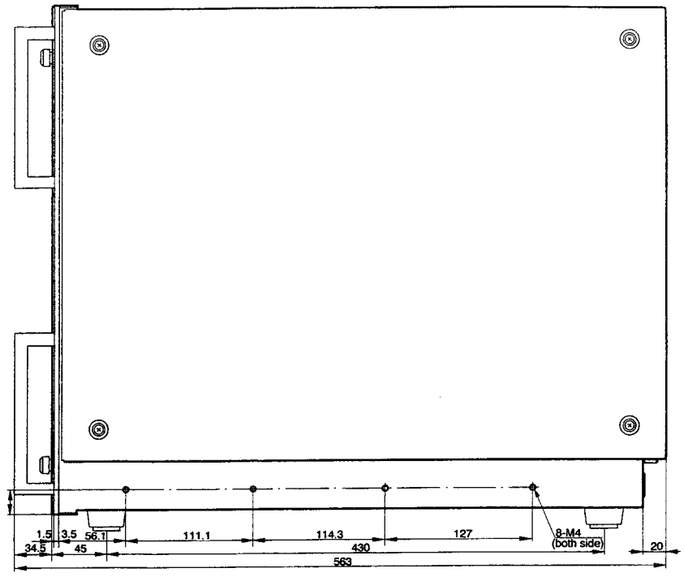
Fig. 2-2 Mounting of the inner member

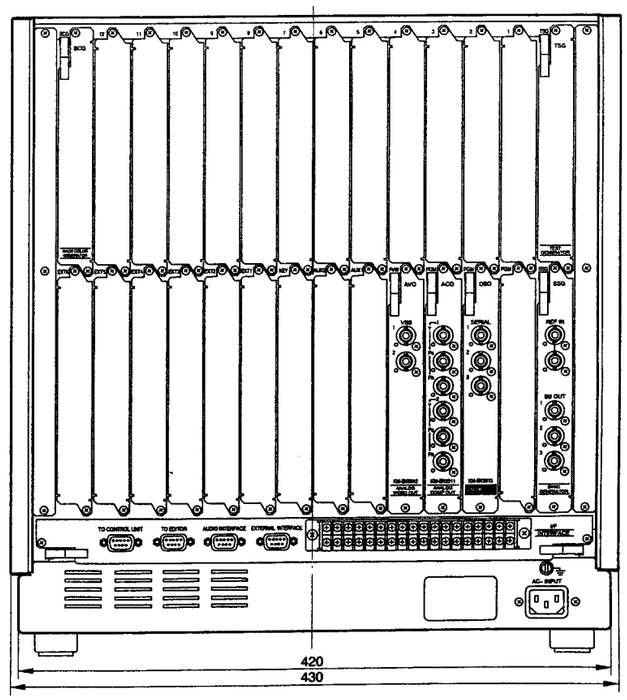


Unit : mm

Fig. 2-3 Dimensional diagrams for control unit installation







Unit : mm

Fig. 2-4 Dimensional diagrams for main unit installation

2.3 Installation of the Optional Input/Output Modules

Which of the optional input/output modules can or cannot be installed depends on the slot design. Refer to Chapter 3.2 before mounting.

(1) Remove the blank panel mounting screws at the rear of the main unit and remove the blank panel.

- The screws removed are no longer required

(2) Install the optional module along the guide rail.

- Be sure that the main unit's power is off during installation, otherwise the optional module may suffer electrical damage.

(3) Secure the optional module with the fixing screws.

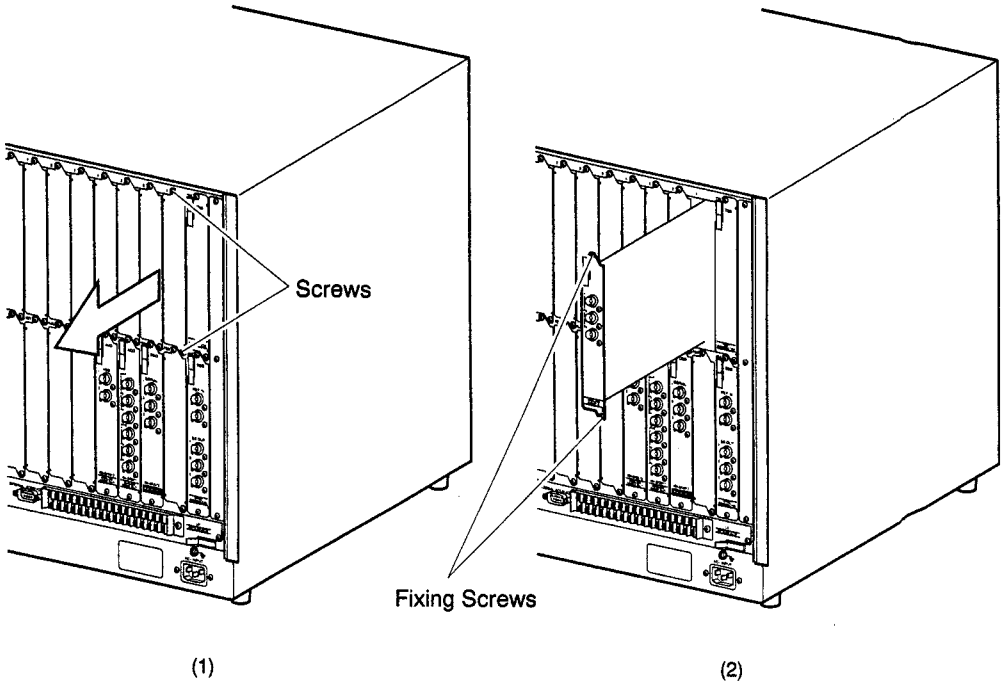


Fig. 2-5 Optional module installation

3. CONNECTIONS

This chapter explains how to connect the KM-5000 to external units. Connector panels of control and main units and optional I/O modules will also be described in detail.

3.1 Control Unit KM-5000P Rear Panel

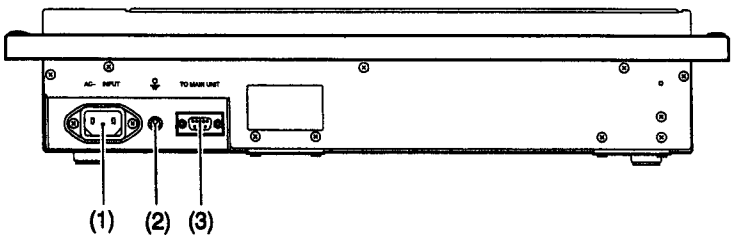


Fig. 3.1 Control unit rear panel

(1) AC power supply connector ***[AC ~ INPUT]***
Receives power through an applicable commercial AC outlet via the provided AC power cable.

(2) Ground terminal
System ground terminal. Usually there is no need for a ground connection. When using the machine in a place subject to excessive electrical power noise, connect this to the ground terminal of an assembly rack or console.

(3) Main unit connector ***[TO MAIN UNIT]***
Connect to the main unit via the provided cable.

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3.2 KM-5000M Main Unit Rear Panel

Below is the rear view of the main unit as seen under normal use.

- The shaded part is the blank panel. With some systems, the optional I/O module is already mounted here.

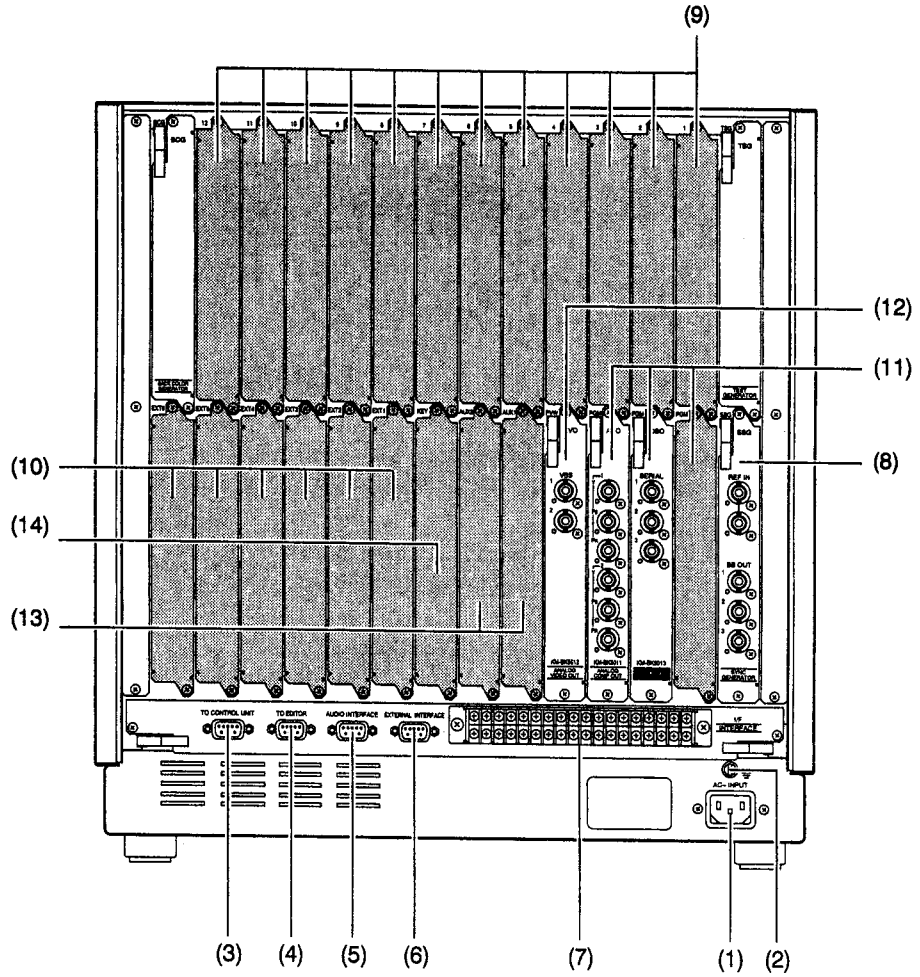

Fig. 3-2 Main unit rear panel

(1) AC power supply connector ***[AC ~ INPUT]***
Receives power from a standard commercial outlet via the provided AC power cable.

(2) Ground terminal
System ground terminal. Usually there is no need for a ground connection. When using the machine where there is excessive electrical power noise, connect this to the ground terminal of an assembly rack or console.

(3) Control unit connector ***[TO CONTROL UNIT]***
Connect to the control unit via the provided cable.

(4) Video editor connector ***[TO EDITOR]***
Connect to a video editor. Connector cable is not provided.

(5) Audio interface connector ***[AUDIO INTERFACE]***
Connect to the separately available JVC auto fader MI-F30. Connection cable is provided with MI-F30.

(6) External unit connector ***[EXTERNAL INTERFACE]***
Connect external units such as personal computers. Connection cable is not provided.

(7) GPI input and tally output terminal base
The terminal base consists of the terminals for connection to GPI-compatible units and tally signal output terminals. Refer to 3.6 for detail.

(8) SSG module ***[SSG - SYNC GENERATOR]***
Sync signal input/output connectors are provided.

- ***[REF IN]*** : BNC-type connectors for input of external sync reference signals. The composite video signal or black burst signal can serve as a reference sync signal. Either of the two connectors can be used as a loop-through output. If not used for loop-through, connect the provided 75-ohm termination plug.
- ***[BB OUT]***: BNC type connectors for output of a reference sync signal (black burst) to an external unit. Three connectors are provided.
  If a reference sync signal is received by the [REF IN] connector, a signal in sync with the reference signal is delivered through this connector.

(9) Primary input slots ***[1-12]***
Optional input modules can be installed in these slots to feed input signals to the versatile video buses. Inputs 1 through 12 are available and can be used with the modules listed below.

Table 3-1 Modules compatible with the primary input slots

Name	Model No.
Analog component input module	KM-BK5001
Analog composite input module	KM-BK5002
Serial digital input module	KM-BK5003
Parallel digital input module	KM-BK5004

(10) External key input slots ***[EXT1-EXT6]***
Optional input modules can be installed in these slots to feed input signals to the external key dedicated buses. Inputs 1 through 6 are available and can be used with the modules listed listed below.

Table 3-2 Modules compatible with the external key input slots

Name	Model No.
Analog component input module	KM-BK5001
Analog composite input module	KM-BK5002
Serial digital input module	KM-BK5003
Parallel digital input module	KM-BK5004
Analog key input module	KM-BK5005

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(11) Program video output slots ***[PGM]***
Optional output modules can be installed in these slots to feed program video signals to monitors and VTRs. Of these, one is connected to the KM-BK5013 serial digital output module and one to the KM-BK5011 analog component output module as standard equipment. Other connectable models are given below.

Table 3-3 Modules connectable with the program video output slots

Name	Model No.
Analog component output module	KM-BK5011
Analog composite output module	KM-BK5012
Serial digital output module	KM-BK5013
Parallel digital output module	KM-BK5014

(12) Preview video output slot ***[PVW]***
Sends a preview video signal to a monitor or VTR. The analog composite KM-BK5012 output module is connected as standard equipment. Other optional output modules (see table 3-3) can be connected depending on the system you're using.

(13) AUX bus video output slots ***[AUX1, AUX2]***
An optional output module can be installed in the slot to feed the video signal selected on the AUX 1/2 buses. Any of the optional output modules listed in table 3-3 can be connected.

(14) Key signal output slot ***[KEY]***
An optional output module can be installed in the slot to feed a key signal to an external special effects generator. The optional output modules listed below can be connected.

Table 3-4 Modules connectable to the key signal output slots

Name	Model No.
Analog component output module	KM-BK5011
Analog composite output module	KM-BK5012
Serial digital output module	KM-BK5013
Parallel digital output module	KM-BK5014
Analog key output module	KM-BK5015

3.3 Connector Location of the Optional Input/Output Modules

3.3.1 Analog component input module KM-BK5001

To receive an analog component signal. BNC type connectors.

- *[Y]* To receive a Y signal
- *[PB]* To receive a B-Y signal
- *[PR]* To receive a R-Y signal

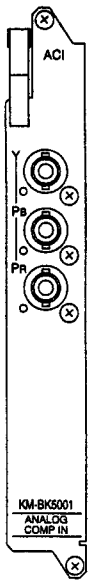

Fig. 3-3 KM-BK5001

3.3.2 Analog composite input module KM-BK5002

To receive an analog composite signal. BNC type connectors.

- *[VBS]* To receive an analog composite signal

■ Internal processing delays the phase by two lines vis-a-vis other input modules.

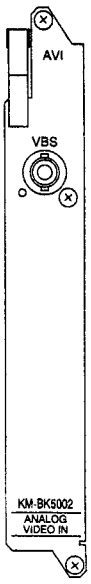

Fig. 3-4 KM-BK5002

3.3.3 Serial digital input module KM-BK5003

To receive a CCIR-656 serial digital signal (270 MHz)
Connector is BNC type.

- ***[SERIAL]*** To receive a serial digital signal

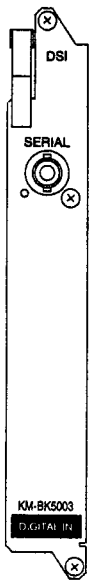

Fig. 3-5 KM-BK5003

3.3.4 Parallel digital input module KM-BK5004

To receive a CCIR-656 parallel digital signal
Connector is of D-SUB 25P type.

- ***[PARALLEL]*** To receive a parallel digital signal

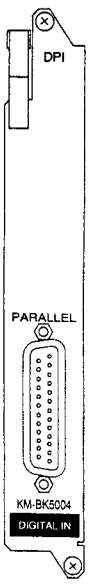

Fig. 3-6 KM-BK5004

3.3.5 Analog key input module KM-BK5005

To receive an external key source signal. BNC type connectors.

- ***[VS/(V)]*** This connector usually receives a video signal with a 1.0 Vp-p sync signal. Composite signals cannot be input.
  Some connected external units may separately output a video signal without sync signal and sync signal. In that case, feed a 0.7 Vp-p video signal without sync signal to this connector and a sync signal to the ***[SYNC]*** connector.
- ***[(SYNC)]*** This connector is not usually used. Only when a video signal without sync signal is input to the ***[VS/(V)]*** connector, a sync signal in sync with the video signal is fed to this connector. Sync signals with signal levels between 0.3 and 4 Vp-p can be input. Slide switch S8 on the PCB must be changed to EXT position when using the [SYNC] connector.

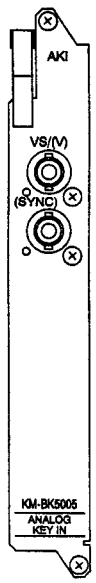

Fig. 3-7 KM-BK5005

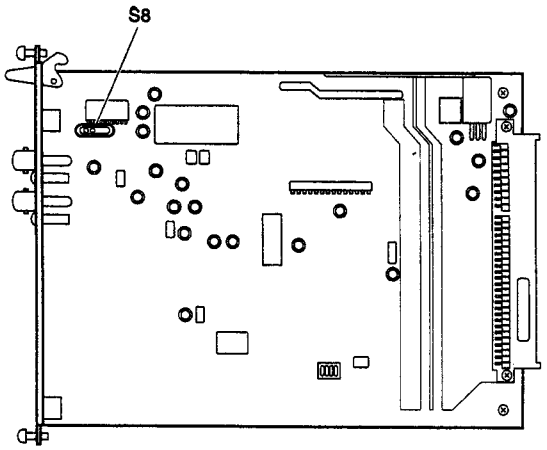

Fig. 3-8 Switch location

3.3.6 Analog component output module KM-BK5011

To output an analog component signal. BNC type connectors. Two output lines are provided.

- ***[Y]*** To output a Y signal
- ***[PB]*** To output a B-Y signal
- ***[PR]*** To output a R-Y signal

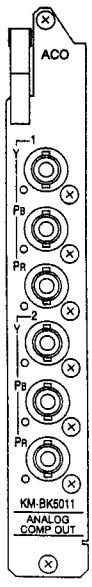

Fig. 3-9 KM-BK5011

3.3.7 Analog composite output module KM-BK5012

To output an analog composite signal. Two BNC type connectors are provided.

- ***[VBS]*** To output an analog composite signal

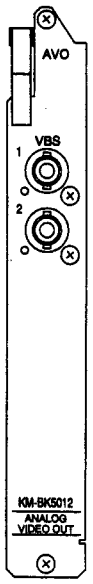

Fig. 3-10 KM-BK5012

3.3.8 Serial digital output module KM-BK5013

To output a CCIR-656 serial digital signal (270 MHz). Three BNC type connectors are provided.

- ***[SERIAL]*** To output a serial digital signal

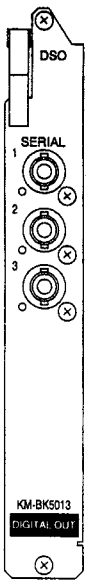

Fig. 3-11 KM-BK5013

3.3.9 Parallel digital output module KM-BK5014

To output a CCIR-656 parallel digital signal. Two D-SUB 25P type connectors are provided.

- ***[PARALLEL]*** To output a parallel digital signal

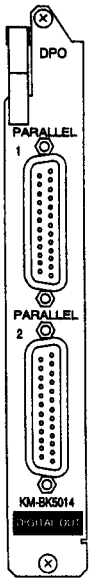

Fig. 3-12 KM-BK5014

3.3.10 Analog key output module KM-BK5015

To output a key source signal processed inside the KM-5000.
BNC type connector is provided. A key source signal is continuously output even when not used on the program video.

- ***[VS]*** To output a key source signal with video signal level 0.7 Vp-p and sync signal level 0.3 Vp-p.

Fig. 3-13 KM-BK5015

3.4 Connecting the Main and Control Units

Use the provided cable.

- The provided connection cable is 10 m long. If extending the cable make sure that total cable length does not exceed 100 m. Cable extension longer than this may result in operation errors.

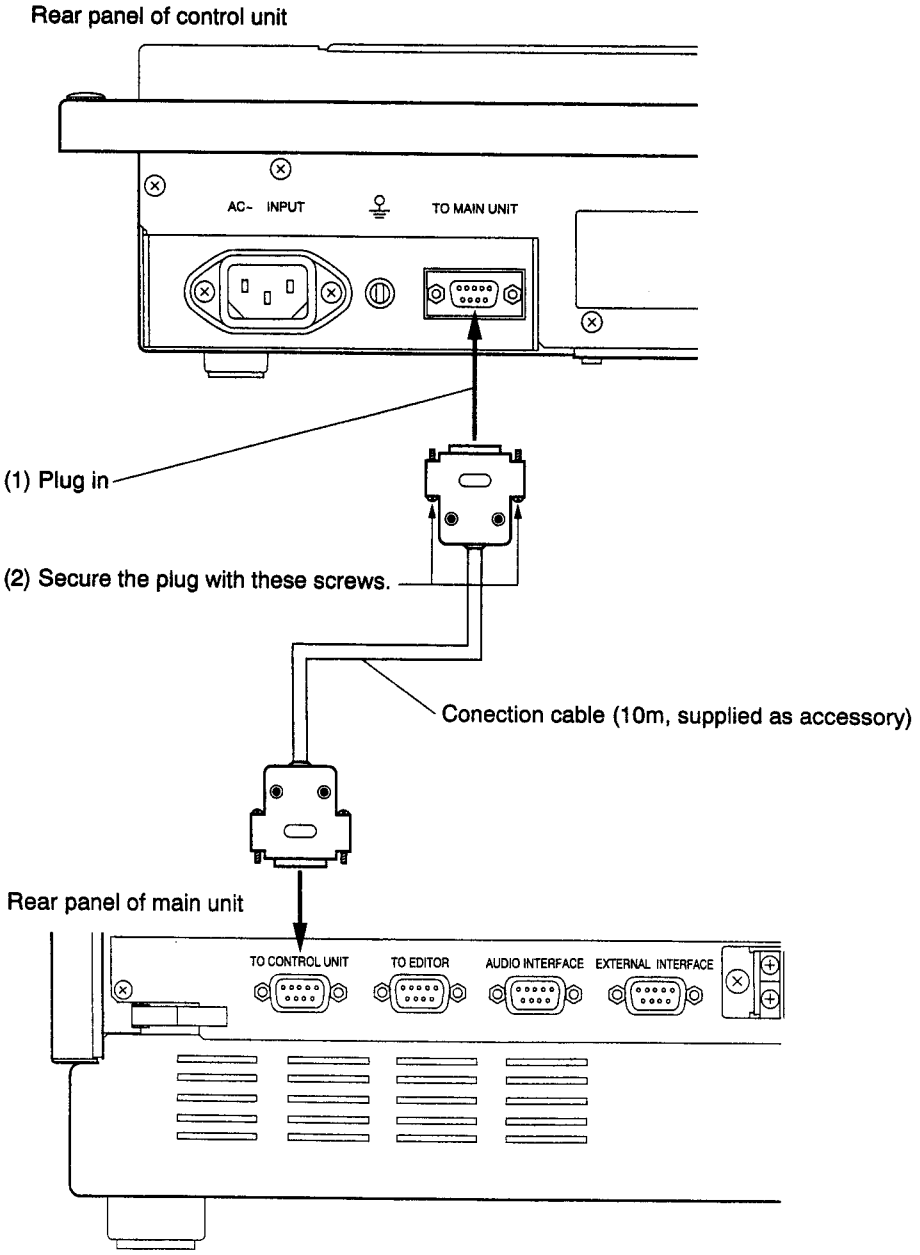

Fig. 3-14 Control unit / main unit connection

3.5 Connection to Video Units

Connection to external video units such as a VCR, a monitor, a digital video effects generator, or a telopper is discussed below with reference to specific examples.

3.5.1 Connection to monitors

Summary

- On-air signals are viewed on a component monitor.
- Preview video signals are viewed on the composite monitor.
- Signals at a specific input are monitored on the AUX 1 bus.

■ Perform color matching between different monitors in accordance with the monitor instruction manuals.

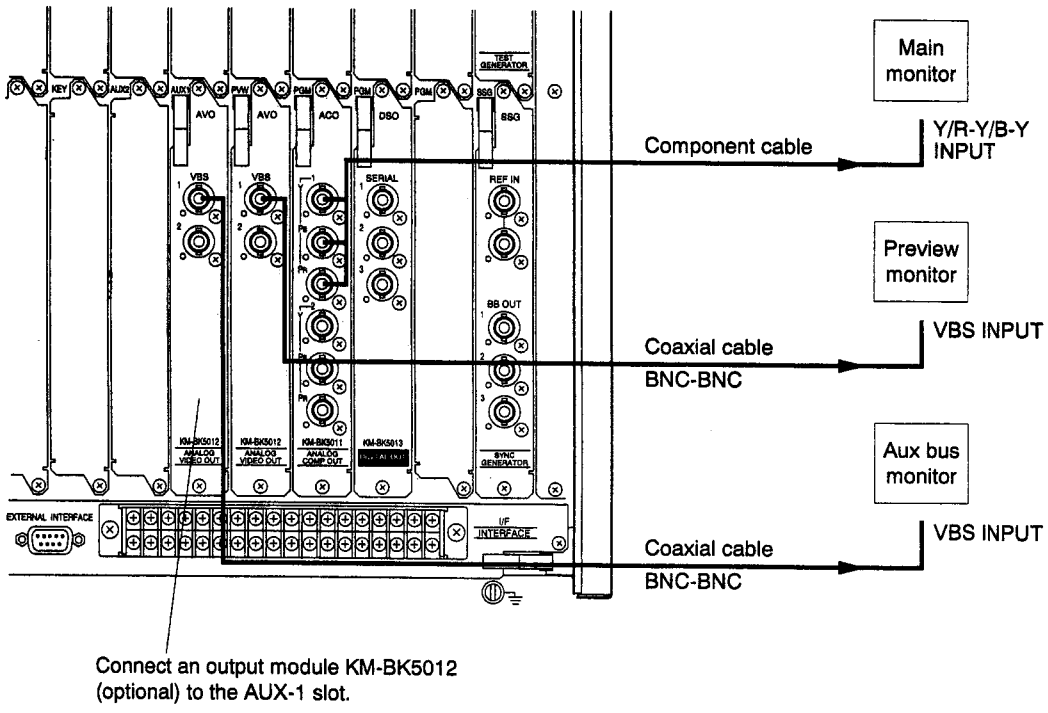

Fig. 3-15 Connection of monitors

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3.5.2 VCR connection for AB roll editing

Summary

- A D1 format (parallel) VCR is connected to input 1 as player A.
- A MII format VCR is connected to input 2 as player B.
- The D1 format (serial) is used for recorder.
- Play back the video signal from the recorder on a monitor connected directly to the VCR.
- The house sync signal is used as a sync signal for each VCR. Feed the house sync to the KM-5000, as well.

■ Perform color matching between the VCRs according to the instruction manual of the VCR.

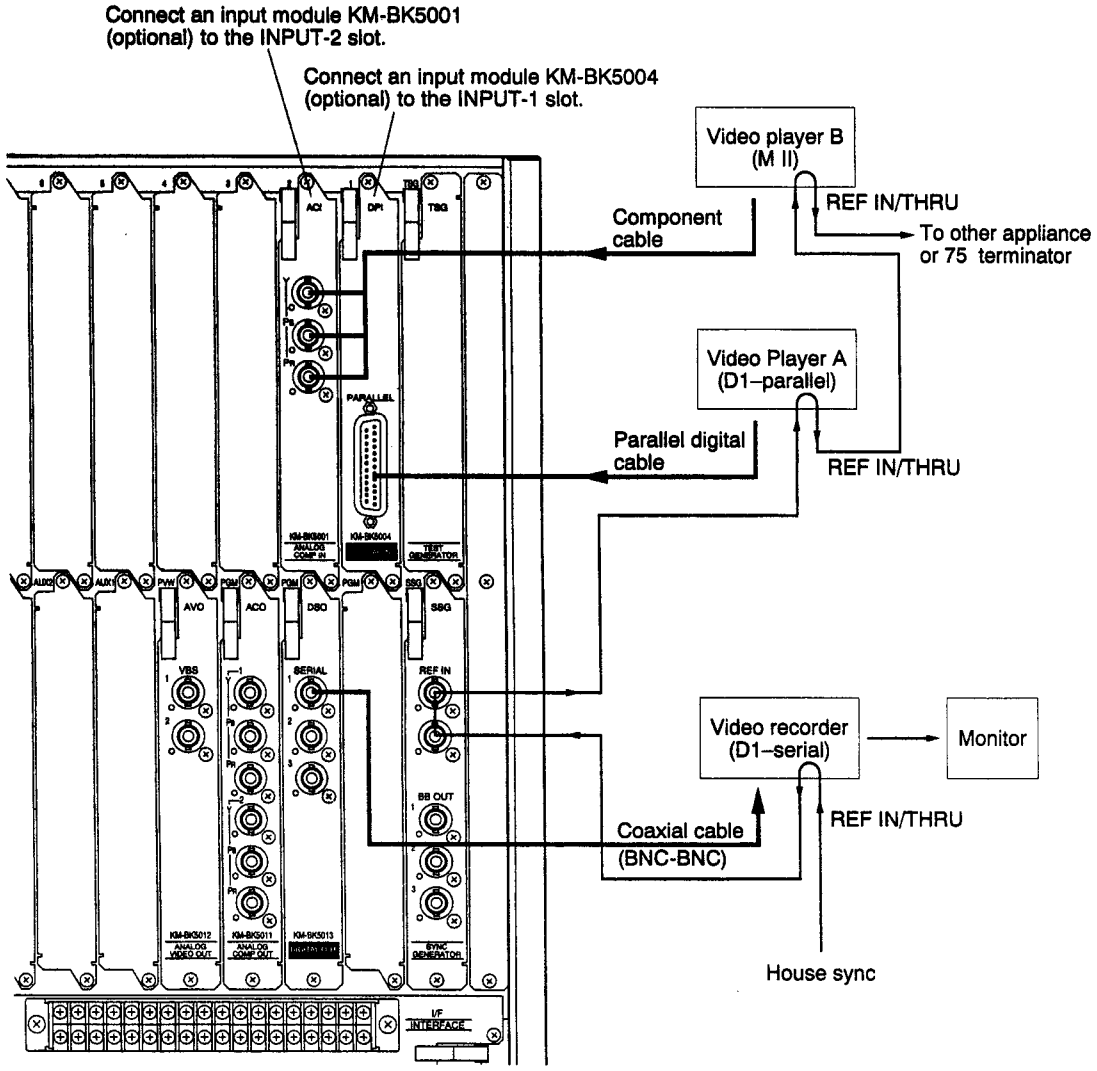

Fig. 3-16 VCR connection

3.5.3 Connection of a chroma key dedicated camera

Summary

- A camera is connected to input 3. The camera video signal will be used as a chroma key source signal.
- Feed the KM-5000 tally signal to the camera.
- The house sync is used as a sync signal for the camera. Feed the house sync to the KM-5000, as well.

■ The VCR video signal may be used as a chroma key source signal.

■ Chroma key can be applied to both the M/E output and DSK output sections.

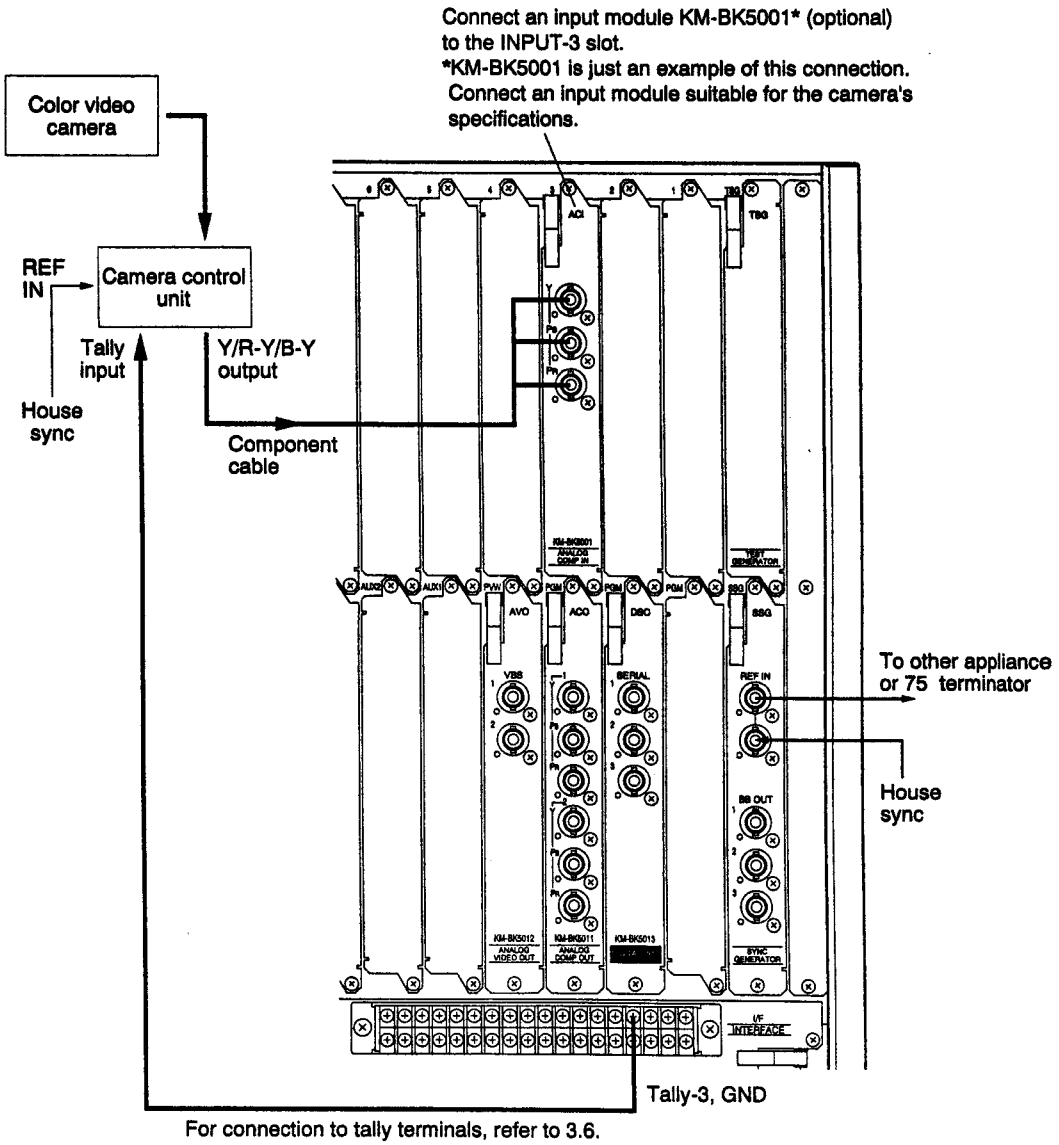
Connect an input module KM-BK5001* (optional) to the INPUT-3 slot.
*KM-BK5001 is just an example of this connection. Connect an input module suitable for the camera's specifications.
Color video camera
REF IN
Camera control unit
Tally input
Y/R-Y/B-Y output
House sync
Component cable
To other appliance or 75 terminator
House sync
Tally-3, GND
For connection to tally terminals, refer to 3.6.

Fig. 3-17 Camera connection

3.5.4 Telopper connection

Summary

- The telop created by the telopper is keyed to the program video signal.
- The telopper character output is fed to input 4 to serve as a key fill.
- The telopper edge output is fed to the external key input slot (EXT) to serve as a key source.
- The house sync is used as a sync signal for the telopper. Feed the house sync signal to the KM-5000 as well.

■ If the telopper has no edge output, the character output received as a key fill can be used as a key source. In this case, the external key input slot is not used.

■ Keying can be applied to both the M/E output and DSK output sections.

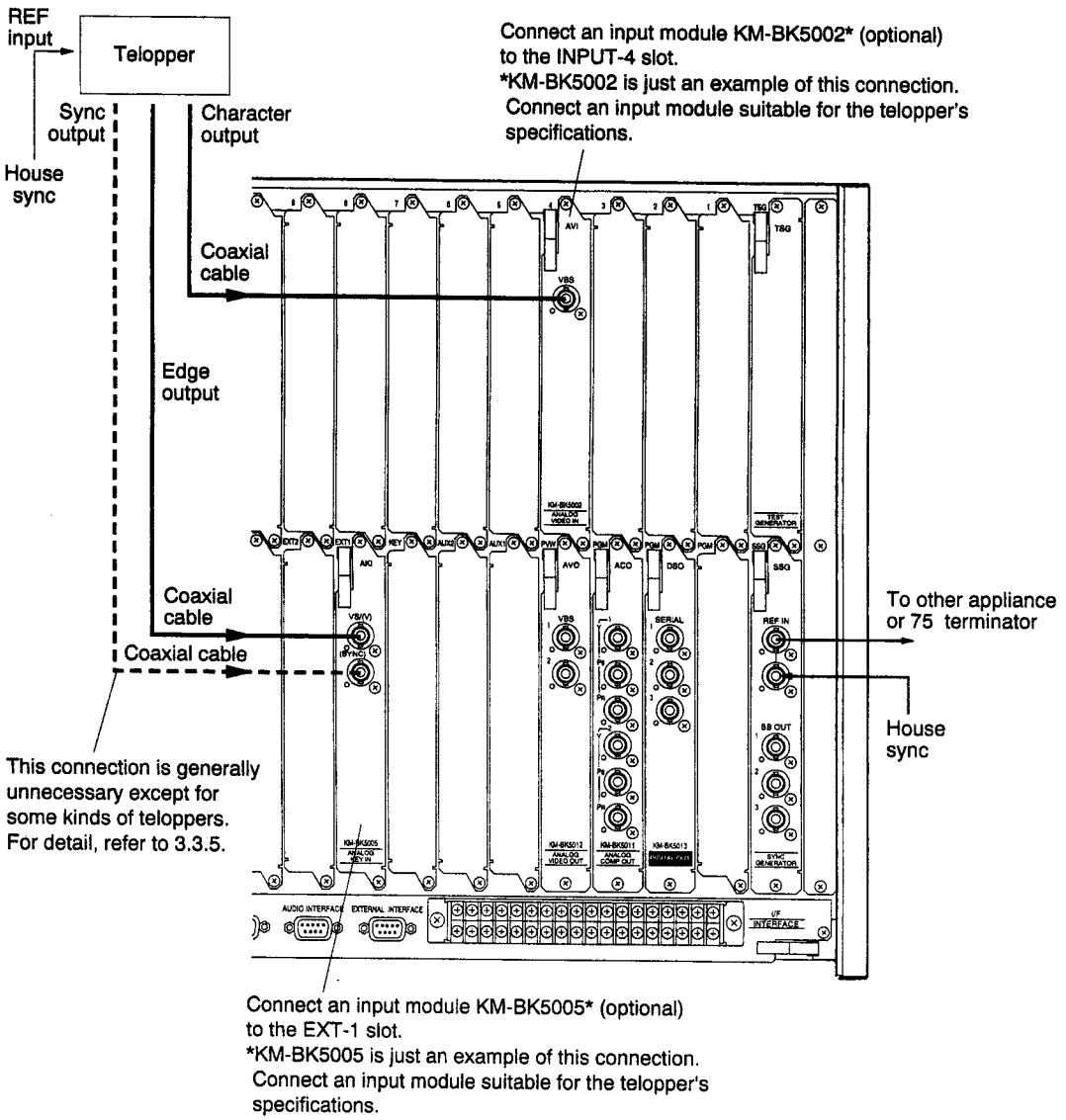
REF input
Telopper
Sync output
Character output
House sync
Connect an input module KM-BK5002* (optional) to the INPUT-4 slot.
*KM-BK5002 is just an example of this connection. Connect an input module suitable for the telopper's specifications.
Coaxial cable
Edge output
Coaxial cable
Coaxial cable
To other appliance or 75 terminator
House sync
This connection is generally unnecessary except for some kinds of teloppers. For detail, refer to 3.3.5.
Connect an input module KM-BK5005* (optional) to the EXT-1 slot.
*KM-BK5005 is just an example of this connection. Connect an input module suitable for the telopper's specifications.

Fig. 3-18 Telopper connection

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3.5.5 Connection to a digital video effecter (DVE) (1)

Summary

- The video signal selected on the KM-5000 AUX2 bus is processed at the DVE.
- The video signal thus processed is returned to the KM-5000 together with the DVE key output.
- The DVE key output is received by the external key input slot (EXT2).
- The video returned is keyed to the program video at the M/E output or DSK output section.

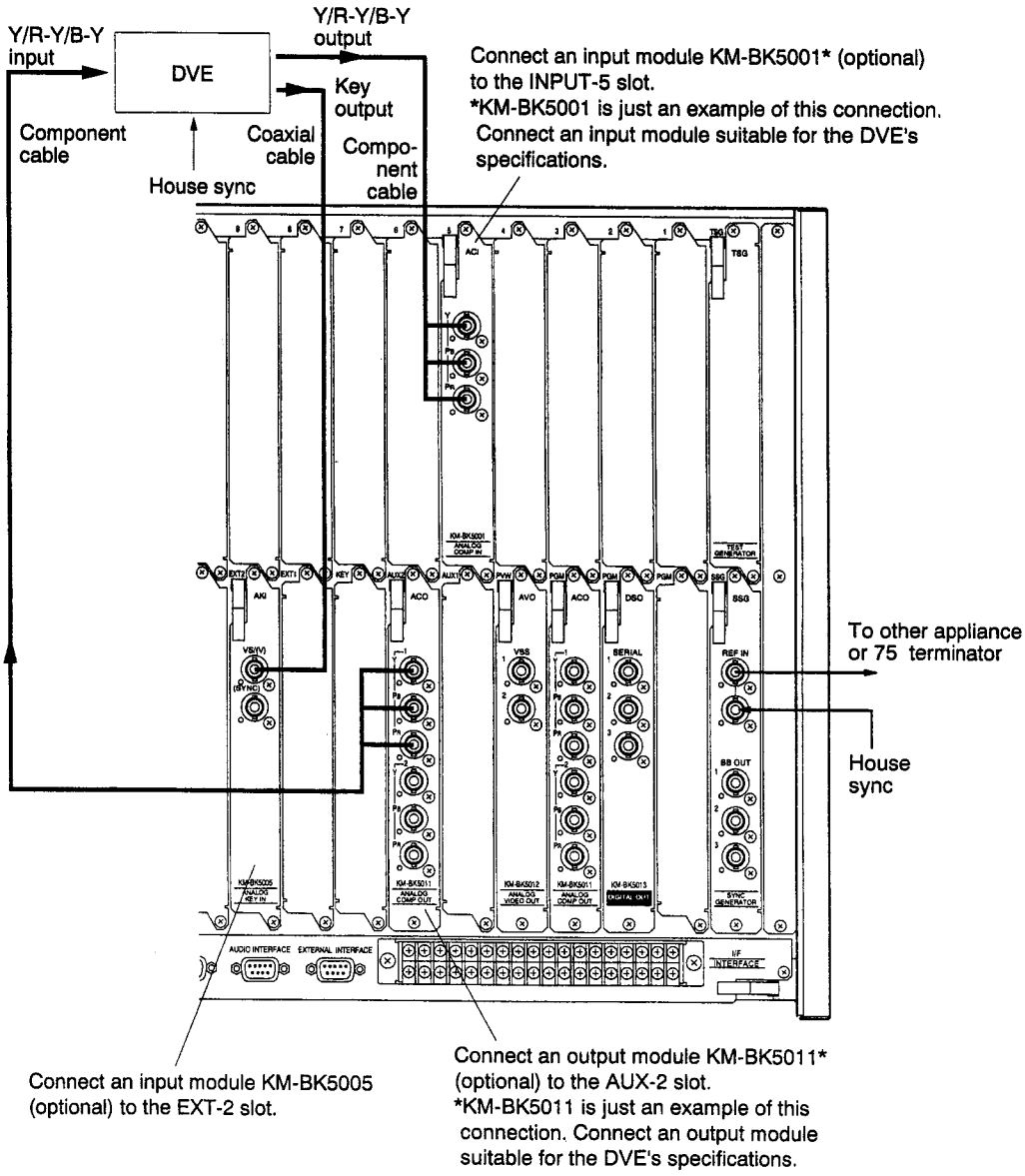
Y/R-Y/B-Y input
DVE
Y/R-Y/B-Y output
Key output
Component cable
Coaxial cable
House sync
Compo-nent cable
Connect an input module KM-BK5001* (optional) to the INPUT-5 slot.
*KM-BK5001 is just an example of this connection. Connect an input module suitable for the DVE's specifications.
To other appliance or 75 terminator
House sync
Connect an input module KM-BK5005 (optional) to the EXT-2 slot.
Connect an output module KM-BK5011* (optional) to the AUX-2 slot.
*KM-BK5011 is just an example of this connection. Connect an output module suitable for the DVE's specifications.

Fig. 3-19 Connection of DVE (1)

3.5.6 Connection to a digital video effecter (DVE) (2)

Summary

- Flying key is carried out using the key output from KM-5000.
- As with the telopper connection, the telop created at the telopper is used as a key source.
- A telopper video signal is selected on the key bus, and keying is set at the M/E output section.
- After setting, the key source is fed to the DVE key input when delivered to the key bus output.
- A telopper video signal is selected on the AUX 2 bus and is fed to the DVE video input.
- With an effect such as size compression is applied at the DVE, the video signal affected is returned to the KM-5000 and keyed to the program video.

■ Since the key bus output is used in this example, keying cannot be used at the M/E output section.

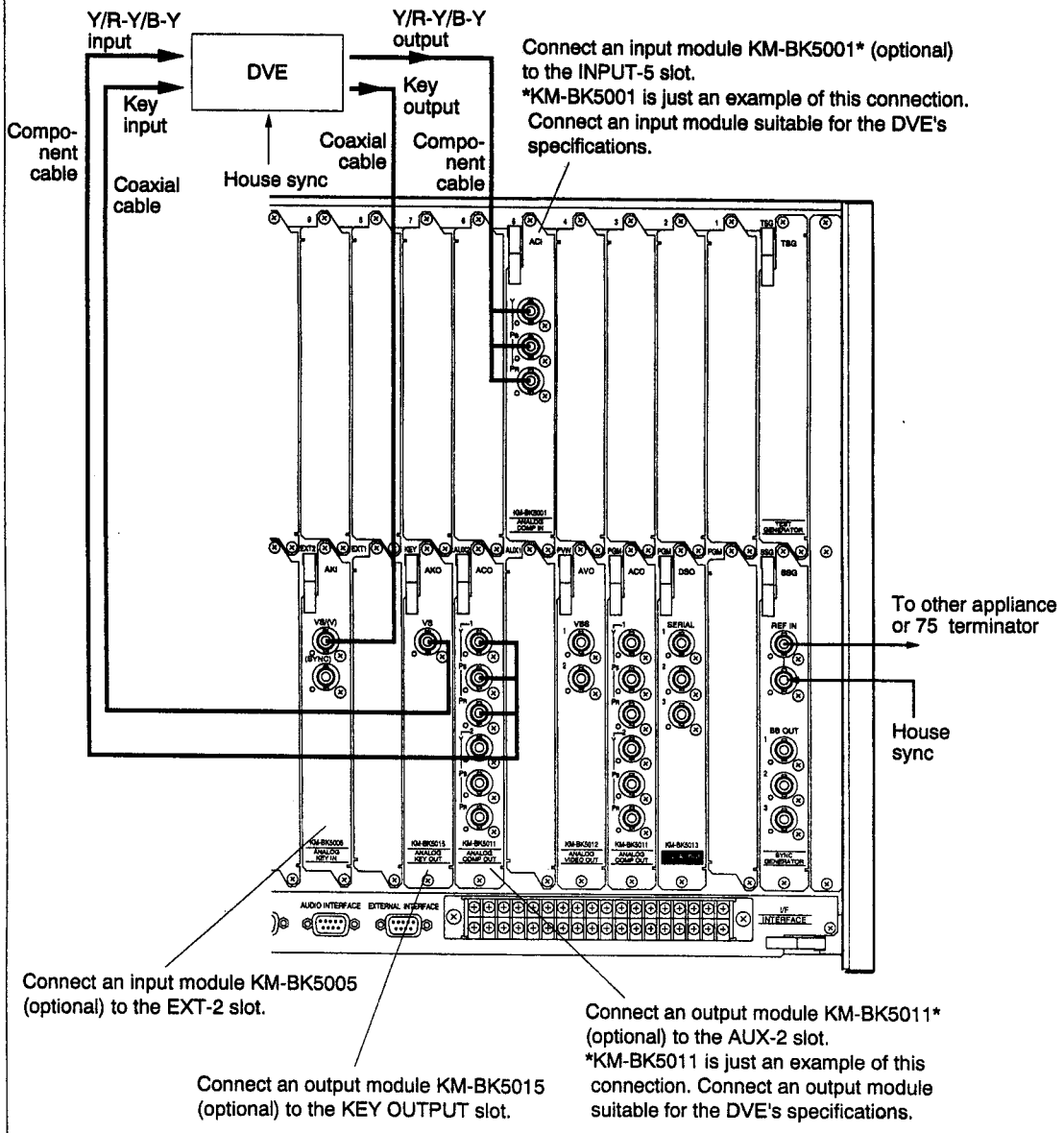
Y/R-Y/B-Y input
DVE
Y/R-Y/B-Y output
Key input
Key output
Compo-nent cable
Coaxial cable
House sync
Coaxial cable
Compo-nent cable
Connect an input module KM-BK5001* (optional) to the INPUT-5 slot.
*KM-BK5001 is just an example of this connection. Connect an input module suitable for the DVE's specifications.
To other appliance or 75 terminator
House sync
Connect an input module KM-BK5005 (optional) to the EXT-2 slot.
Connect an output module KM-BK5015 (optional) to the KEY OUTPUT slot.
Connect an output module KM-BK5011* (optional) to the AUX-2 slot.
*KM-BK5011 is just an example of this connection. Connect an output module suitable for the DVE's specifications.

Fig. 3-20 DVE connection (2)

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3.5.7 Notes regarding DVE connection

- In the connection examples 3.5.5 and 3.5.6, images generated by the KM-5000's M/E sender can be processed by the DVE when M/E is selected on the AUX bus. To avoid problems, however, be sure that M/E is not selected on the DSK BKGD bus. If the DSK is applied using the normal setting, the M/E signal returned from the DVE will be combined with the original M/E signal. The figure below shows the flow of the M/E signal in connection example 3.5.6 with INPUT 12 selected on the DSK BKGD bus.

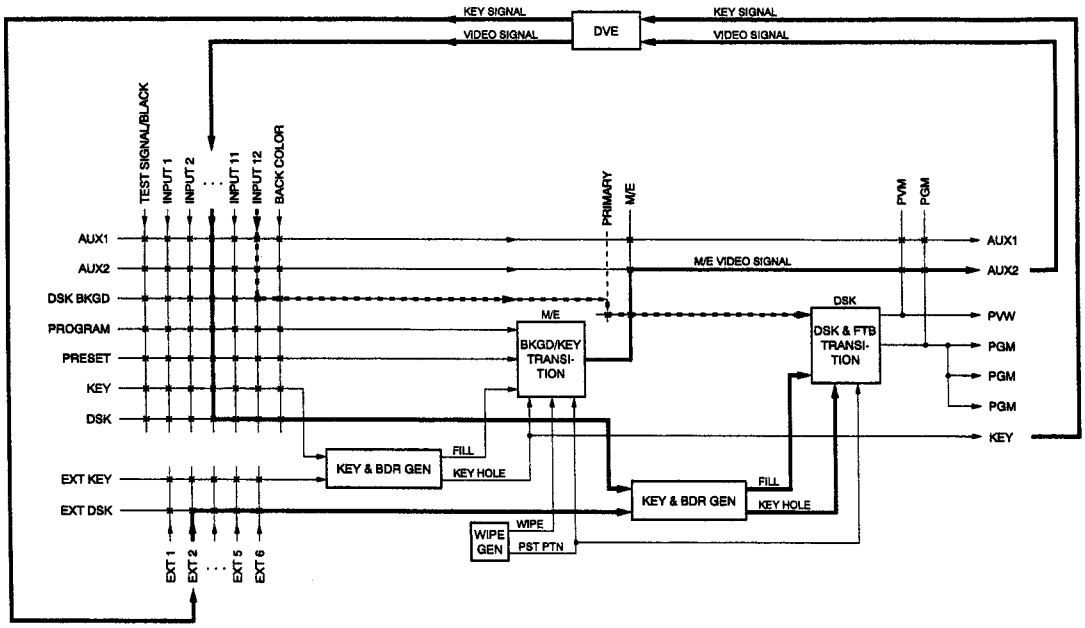

Fig. 3-21 M/E video signal flow

3.5.8 Sync signal distribution

Summary

- Sync signals from the KM-5000 are distributed among the video units to bring them into sync with KM-5000.

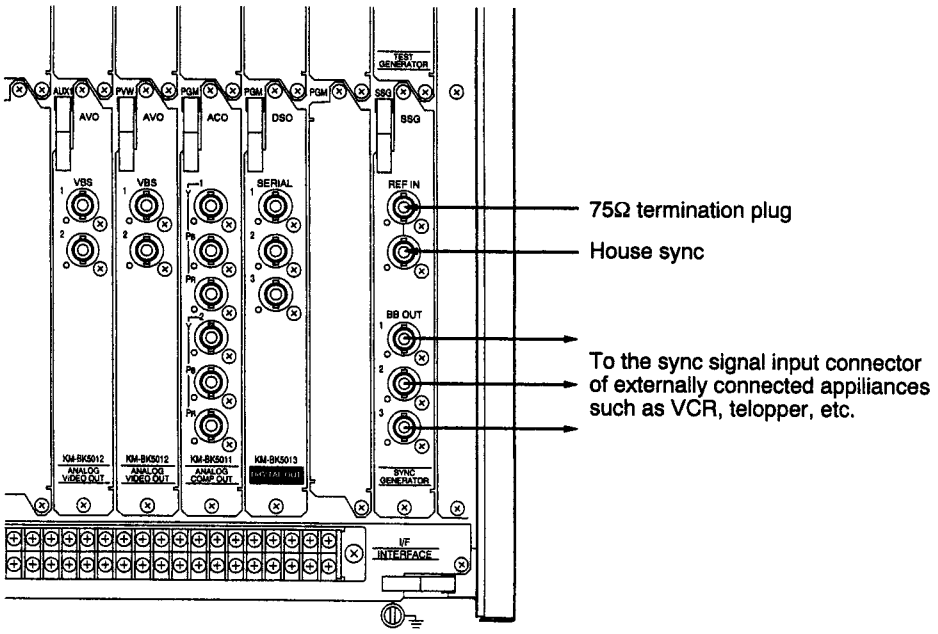
75Ω termination plug
House sync
To the sync signal input connector of externally connected appliances such as VCR, telopper, etc.

Fig. 3-22 Sync signal distribution

3.6 GPI and tally connection

3.6.1 Connection procedures

(1) Fully loosen the terminal base fixing screws at the main unit rear panel and remove the terminal base.

(2) Connect control leads from GPI and tally to the terminal base. (Refer to 3.6.2 and 3.6.3.)

(3) Mount the terminal base on the main unit and secure with screws.

- Do not wire the GPI or tally connection cable near strong noise sources as this may cause the GPI to malfunction.

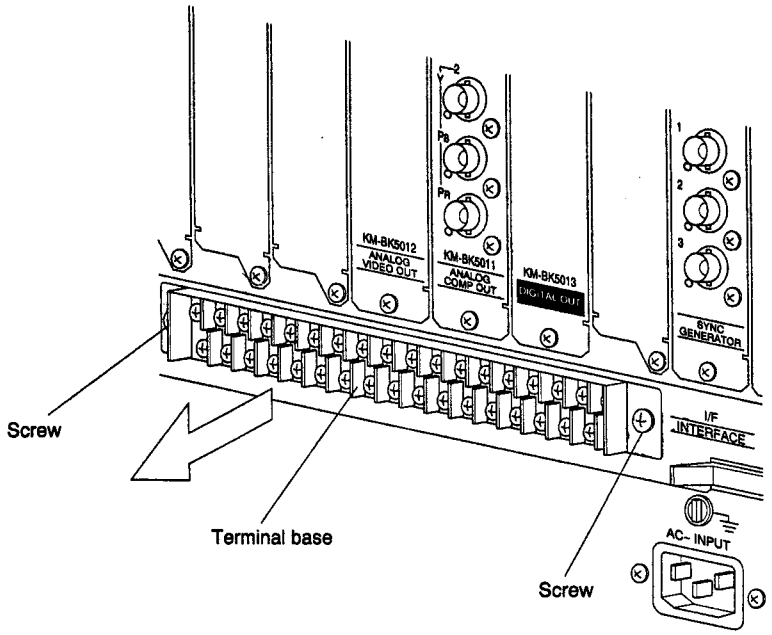

Fig. 3-23 Removal of the terminal base

3.6.2 GPI terminals

Some KM-5000 effects can be generated by making contact with the following terminals.

- ***[M/E]*** Provides the same effect as pressing the AUTO button at the M/E output
- ***[DSK]*** Provides the same effect as pressing the AUTO button at the DSK output
- ***[FTB]*** Provides the same effect as pressing the FTB button
- ***[SEL]*** Any one of the four effects can be generated by setting on the control display. (See chapter 5.4.9)
- ***[GND]*** GND side of the contact

- The [SEL] terminal is useful when connecting an external unit that doesn't have multiple GPI outputs.
- When using a switch for making contact, be sure to use a momentary-type switch. Keep chattering of the switch to less than 10 msec to avoid operation errors.

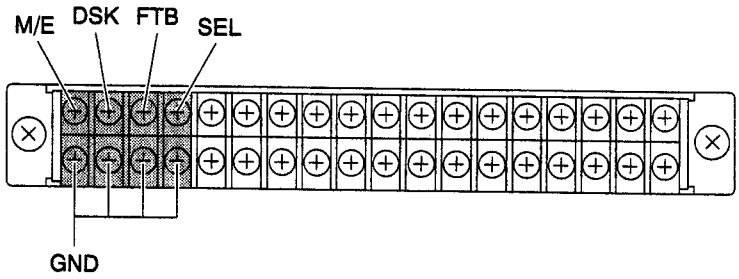

Fig. 3-24 GPI terminals

3.6.3 Tally terminals

The tally signal informs the camera or a similar unit whether or not its video signal is currently in use for the primary video bus.

- ***[1-12]*** Tally outputs corresponding to inputs 1 through 12. Usually provide a make contact. Maximum current to flow into the make contact is 1 A.
- ***[COMMON]*** Common terminal for the tally outputs ***[1-12]***
- ***[MODE] [GND]*** Tally enters the voltage supply mode when ***[MODE]*** is connected to ***[GND]***.

- Maximum current to flow into the contact in the make contact mode is 1 A. Current exceeding this level will damage the KM-5000's internal circuits.
- The voltage supply mode provides DC 5 V Max. 8 mA (output impedance 120Ω).

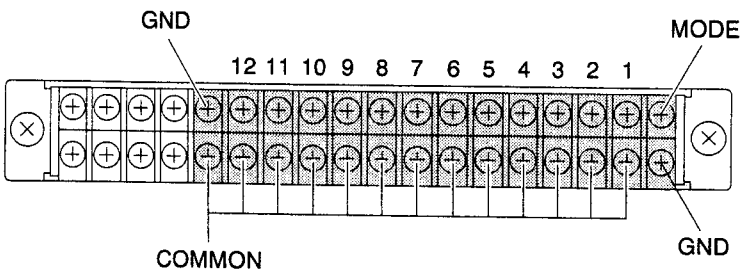

Fig. 3-25 Tally terminals

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3.7 Connection to a video editing controller

The KM-5000 can be controlled via a video editing controllor. The protocol used is the SMPTE Rp.113 subset — which is compatible with the GVG Model 100 and the JVC KM-3000.

- Supply your own connection cable.
- Consult your nearest authorized JVC dealer to find out which editors are connectable to the KM-5000.
- The KM-5000's internal switches must be set to match the communications format and protocol. See chapter 7 for details.
- Some functions may not be available depending on the type of editor. Consult your JVC dealer for details.
- The communications hardware basically conforms to the RS-422 format, but can also be made compatible with RS-232C. See chapter 7 for details.
- When the [EDITOR] lamp on the control panel is off, operations cannot be controlled from the video editor. (See Chapter 5.3.10)

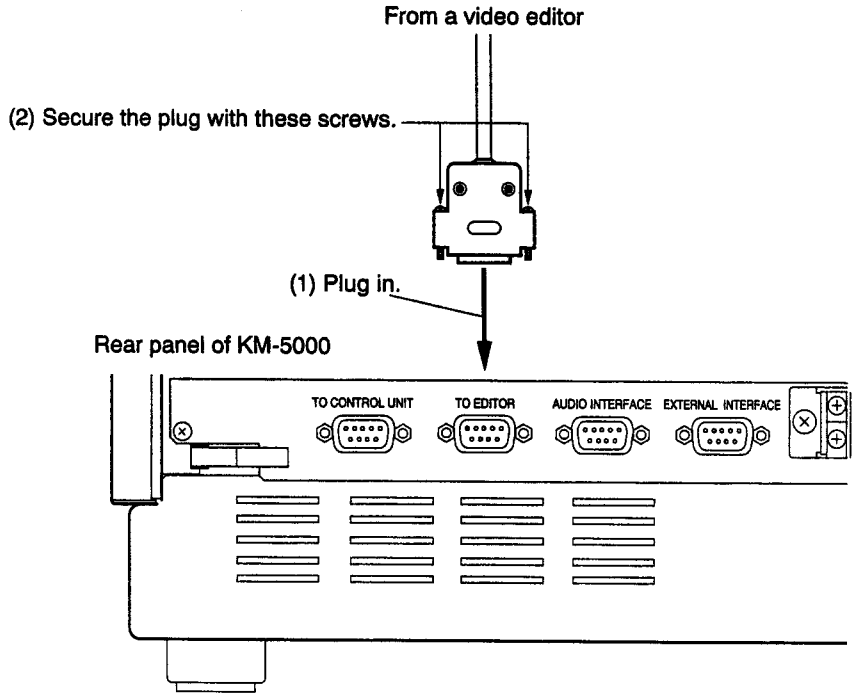

Fig. 3-26 Video editor connection

3.8 Connection to Audio Interface

The JVC audio mixer MI-3000 can be operated in conjunction with the KM-5000 by connecting the JVC MI-F30 auto fader .

- Connection cable is provided with the MI-F30.
- Refer to the MI-F30's instruction manual for details on connecting the MI-F30 to the MI-3000.
- The MI-F30's internal switches must be changed to a different setting. See chapter 7 for details.
- Do not use the MI-F30 GPI terminals and the KM-5000 GPI terminals at the same time. Since the KM-5000 sends a corresponding command to the MI-F30 as soon as it receives a GPI trigger, connecting both sets of terminals will result in an operation failure.

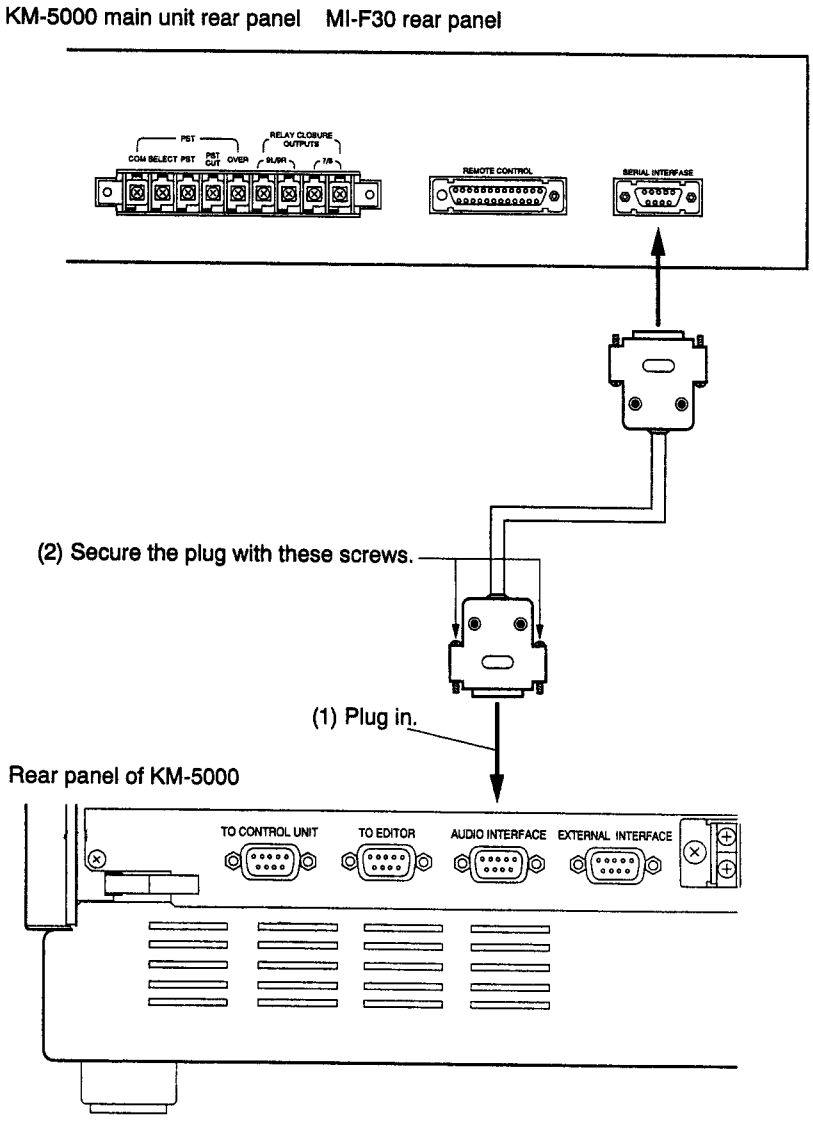

Fig. 3-27 Connection to the audio interface

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Corresponding KM-5000 and MI-F30 functions and settings are listed below.

Table 3-5 List of KM-5000 and MI-F30 corresponding functions

Functions and settings KM-5000	Functions and setting MI-F30	Remarks
PROGRAM BACKGROUND BUS	PROGRAM BUS	The MI-F30's bus button is turned off when BLACK or 6 or higher-number input is selected at KM-5000.
PRESET BACKGROUND BUS	PRESET BUS	
DSK BUS	OVER BUS	
M/E CUT	PST CUT	Corresponds only to background transition at KM-5000. When a key transition is performed, selected buses do not coincide with those at MI-F30.
M/E AUTO	PST TARNS	
DSK CUT	CUT operation at OVER bus	No corresponding button on MI-F30, but proper operation takes place. CUT operation at OVER bus does not interlock with KEY EXCHG function at KM-5000.
DSK AUTO	OVER TRANS	Input operation at OVER bus does not interlock with KEY EXCHG function at KM-5000.
TRANS M/E (Duration time)	PST TRANS	
TRANS DSK (Duration time)	OVER TRANS	
TRANS FTB (Duration time)	Fade out	No corresponding display at MI-F30, but proper function takes place.
EVENT MEMORY READ/STORE	MEMORY READ/STORE	The MI-F30's memory No. will correspond to the KM-5000's memory No. less 1

- The MI-F30 is not compatible with manual operation of the KM-5000's fader lever.
- Likewise, the MI-F30 is not compatible with the KM-5000's fader limit function.
- The MI-F30 interlocks even when the KM-5000's functions as listed on Table 3-5 are externally controlled from a video editor or similar unit.
- If the video editor is not compatible with DSK, use it in conjunction with the GPI outputs.

3.9 Connection of Personal Computers

The KM-5000 has another connector for connection with an external control unit. A computer connected to this connector is able to control all the functions of the KM-5000.
While all protocol and hardware details are the same as when connected to a video editor, the data can be set independently of the video editor.

- Consult your JVC dealer for protocol and hardware setting.
- You must supply your own connection cable.

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4. INITIAL SETTINGS

4.1 Color Matching Connected Units

Video equipment such as VCRs require preliminary adjustment to compensate for color differences. Color bar signals from the KM-5000's built-in color bar generator can be used for adjustment.
Adjustment procedures are discussed below using a VCR connection as an example.

(1) Record KM-5000 color bar signals on a video tape.

(2) Select color bar on the KM-5000 program bus.

(3) Play back the tape (1) on the VCR and select this signal on the preset bus.

(4) Execute background transition with the wipe . Move the fader lever and stop the lever around the middle of the stroke.

(5) Adjust the VCR so that the levels of the upper and lower color bar signals are coincident with each other.

- Perform adjustment in the same way for other VCRs.
- For more details, refer to the VCR instruction manual.
- Specific measuring equipment is required for more precise adjustment. Consult your JVC dealer for details.

4.2 Phase Adjustment

Since the KM-5000 incorporates an automatic phase adjuster, phase adjustment of input video signals is unnecessary.

Phase adjustment may be necessary in some cases; for instance, when the output video signal from the KM-5000 is fed to another system receiving the same sync signal as the KM-5000. In this case, the horizontal phases of the KM-5000 sync signal and the video signal output can be finely adjusted with respect to a reference signal. Consult your JVC dealer for details.

5. OPERATIONS

5.1 Power on

The main unit power switch is on the front panel.

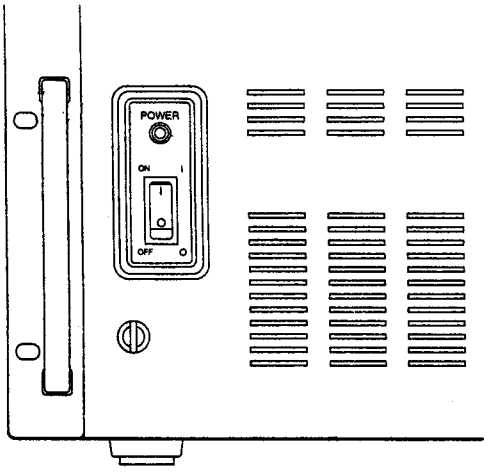

Fig. 5-1 Location of the main unit power switch

The control unit power switch is inside the unit.

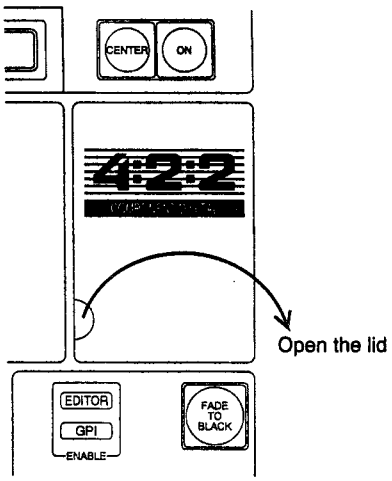

Fig. 5-2 Location of the control unit power switch

- Power can be turned on first at either the main unit or the control unit.
- Once both units have been turned on, the main unit initiates communications with the control unit. Initial communications take 3 — 4 seconds, during which time neither unit will perform any other operations. Initial communications may occasionally take as long as 15 seconds, depending on communication conditions and/or power-on timing. This does not indicate any failure or malfunction in the units.
- If the power is turned on again at either of the units during operation, initial communications start again.

5.2 Overview of the Control Panel

5.2.1 Control Clusters

The panel controls are generally clustered as follows.

(1) Power switch (Inside the lid) : Turns the power on and off.

(2) Control display : Performs and displays the settings.

(3) Crosspoint select cluster : Allocates the video signals input to the KM-5000 to the individual buses.

(4) M/E sender cluster : Performs transitions with the three buses, program background bus, preset background bus and key bus.

(5) DSK sender cluster : Delivers the DSK effect to the on-air line.

(6) Fade-out cluster : Fades the on-air video in and out.

(7) Wipe pattern select cluster : Selects a wipe pattern to be used for transitions and preset pattern keying.

(8) Color select cluster : Sets colors to be used for each effect.

(9) Key/DSK setting cluster : Sets the keying at the M/E sender and DSK sender clusters.

(10) Multi-purpose key cluster : Used for different purposes: to display settings, enter values, and to turn various functions on and off.

(11) External control acceptability indicators : Indicates whether or not an external control is acceptable.

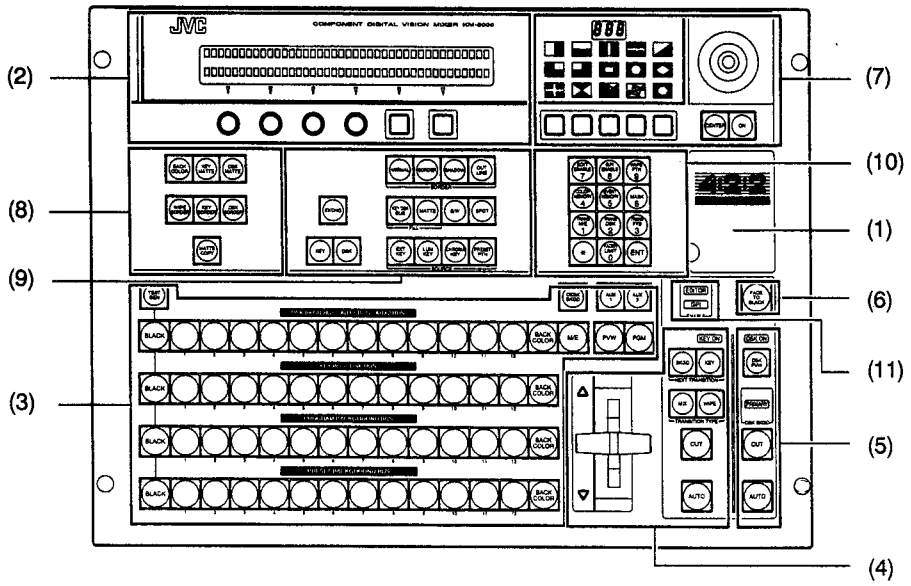

Fig. 5-3 Control clusters

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5.2.2 There are numerous buttons on the control panel.

These are grouped into a number of different operations.

First of all, there are two major types of buttons, (1) those that directly initiate a KM-5000 operation and (2) those that do not cause a KM-5000 operation. When the buttons (1) are pressed, they light up as soon as their operation is accepted by the main unit. The main unit responds immediately to button operation. While some of the main unit operations appear on the monitor screen, others are merely internal.

Most of the buttons are type (1). The type (2) buttons are

- Setting display indicator buttons

The other buttons are categorized as follows depending on the way they light up.

- Exclusively operating buttons : In a cluster of buttons, only the pressed button lights, leaving the other buttons off.
- Toggle buttons : Can be turned on and off separately from each other.
- Buttons that work simultaneously : Usually serving as exclusive buttons, these buttons can function together when pressed.

The exact functions and operations of each button will be explained in the relevant part of the text.

5.2.3 Entry of numerical values

When setting special effects on the KM-5000, the setting parameters may sometimes have to be entered in numerical form. Entry of numerical values can be done in either of the following ways.

- Entry by turning the knob : At the control display
- Ten keypad entry : Multi-purpose key

Then-key entry is limited to the following parameters.

- Automatic operation time for M/E, DSK and Fade-out transitions.
- Wipe number
- Color memory number
- Event memory number

When the knob is turned, the main unit immediately responds to the setting values entered. This enables you to continuously check the change in values on the display.

When using the ten key pad, the main unit will respond when you press the ENT key after entering a number. This means discrete numbers can be entered at one time.

For this reason, the knob is used when variation in setting values may appear on the monitor screen, while the ten key pad is used when variations need to be kept off the display.

5.3 Names and Operations of the Front Panel Controls

5.3.1 Control Display

Changes and displays the various settings. Also shows warning messages. This part of the control panel consists of a 40-character, 2-line display, four rotary encoder knobs, and two push buttons.

The display responds to operation of the control panel by indicating the functions assigned to the knobs and buttons and the numerical values selected. There is no display of functions and numerical values for knobs and buttons not in use.

The knobs are all mounted on rotary encoders, so that control depends on the turning direction and not the actual position position of the knobs.

- Turning the knob clockwise increases the value or moves to the next setting item;
- Turning the knob counterclockwise decreases the value or moves to the preceding setting item.

The buttons are toggle type; each time a button is pressed the setting changes in sequence.

The figure shown in the top right the display is the ID number for the display frame on view. If the display is divided into more than one sections or has different versions for one setting, the ID number is shown with a sub-number (suffix).

Throughout the description below, the numerals beginning with # stand for an ID number with or without its sub-number: i.e., #20-1 stands for ID No. 20 and its sub No. 1.

See Chapter 5.4 for more details on the display.

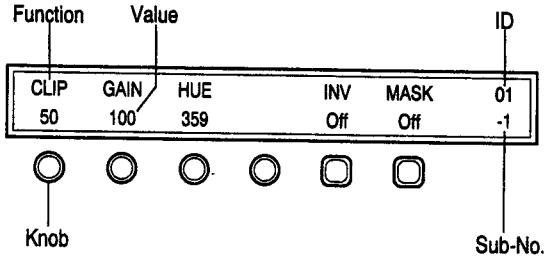

Fig. 5-4 Example of the control display

5.3.2 Cross Point Select Cluster

Allocates video signals input to the KM-5000 to the seven versatile video buses.

Although the key bus and the DSK bus share an input select button, they are internally independent and receive input video separately.

Likewise, the AUX bus 1, the AUX bus 2 and the DSK background bus share an input select button but are internally independent from one another.

The desired video source can be selected from any one of 12 inputs, as well as black (switchable to the built-in signal generator) and back color. However, sources cannot be selected at inputs with no input module or where the power is not turned on at the external unit connected to the input module.

The video signal from the M/E sender cluster is normally selected when it is for use on the DSK background bus. In addition to the M/E video output, PGM and PVW video output can be selected for the AUX 1/2 buses.

The selected input button on the KEY, DSK, PROGRAM and PRESET buses illuminates at two different degrees of brightness according to the situation; bright when the video at the selected input is being output from the primary bus, and dim when it is not being output.

When back color is selected on any bus, the color setting frame (#10-2) appears on the control display. At the same time, the BACK COLOR button in the color setting cluster automatically turns on. This forces the MATT COPY button to go off.

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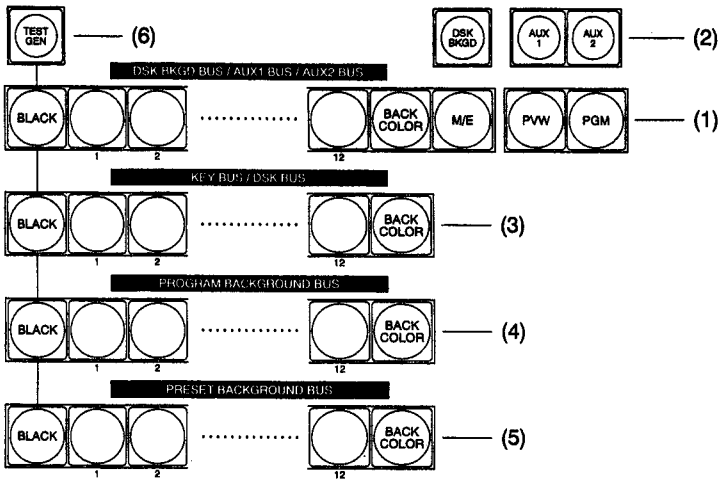

Fig. 5-5

(1) AUX buses/DSK background bus input select button ***[DSK BKGD BUS] [AUX1 BUS] [AUX2 BUS]***

Selects the video signal to be input to the bus selected by button (2). PGM and PVW buttons cannot be selected on the DSK background bus.

(2) Bus assign button ***[DSK BKGD] [AUX1] [AUX2]***
Assigns the button (1) to a bus selected from DSK BKGD, AUX1 and AUX2. The button pressed is illuminated, with the other two turned off. One of the buttons (1) is illuminated for the currently selected input on the bus assigned.

- ***[DSK BKGD]*** Uses the button (1) as a DSK background bus select button
- ***[AUX1]*** Uses the button (1) as an AUX1 bus select button
- ***[AUX2]*** Uses the button (1) as an AUX2 bus select button

(3) Key bus/DSK bus input select button ***[KEY BUS] [DSK BUS]***
Selects the video to be input to the key bus or DSK bus. Switching between the buses can be done by the key/DSK select buttons at the key/DSK setting cluster. With the key button selected at the cluster, the button (3) functions as a key bus select button. With the DSK button selected at the cluster, it serves as a DSK bus select button.

(4) Program bus input select button ***[PROGRAM BKGD BUS]***
Selects the video to be input to the program bus.

(5) Preset bus input select button ***[PRESET BKGD BUS]***
Selects the video to be input to the preset bus.

(6) Black signal/test signal switching button ***[TEST GEN]***
Selects the black signal input in conjunction with the BLACK button on any set of bus select buttons. The black signal is sent to the bus selected when TEST GEN button is extinguished. With the button pressed, it is illuminated to allow the signal from the built-in test signal generator to be input to the bus. The control display shows a set of settings (#20), from which a desired type of test signal can be selected.

5.3.3 M/E Sender Cluster

Performs transitions on three buses: program background bus, preset background bus, and key bus. The video signal on the program bus, usually on air at the program output, can be exchanged with the video signal on the preset bus by means of the wipe or mix effect. It can also receive a video source from the key bus for keying.

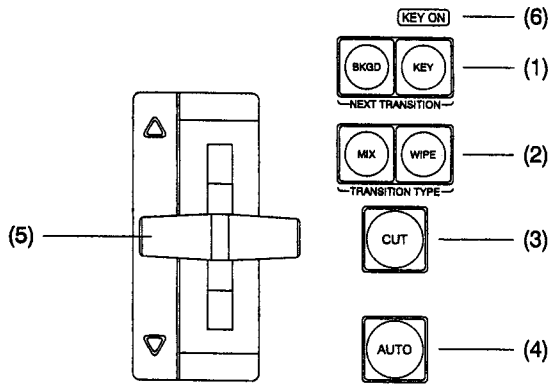

Fig. 5-6 M/E sender cluster

(1) Next-transition select buttons ***[BKGD] [KEY]***
Whichever button is pressed lights; the other goes off. Both buttons light when pressed simultaneously. It is not possible to turn off both buttons at the same time.
When this button is pressed with the fader lever positioned midway or while automatic transition is taking place,the transition selected immediately before the button was pressed is cancelled and replaced with the newly selected transition.

- ***[BKGD]*** only illuminated : Background transition to take place as next transition.
- ***[KEY]*** only illuminated : Key transition to take place as next transition. Pressing this button calls up the key/DSK setting menu (#01-1/2/3) on the control display.
- Both illuminated : Background transition and key transition to take place simultaenously.

(2) Effect select buttons ***[MIX] [WIPE]***
Press to select the type of transition (effect). Only one effect can be selected at a time. Whichever button is pressed will light while the other remains unlit.

- ***[MIX]*** Transition to be performed using the mix effect
- ***[WIPE]*** Transition to be performed using the wipe effect. Pressing this button calls up the wipe setting menu (#30-1) on the control display.

(3) Cut button ***[CUT]***
When this button is pressed, the transition takes place immediately.
Effect selection with the effect select buttons (2) is disabled when the CUT button is pressed.

(4) Auto button ***[AUTO]***
Starts automatic transition. Transition is executed at the preset length of time. Transition time setting is performed using the multi-purpose key cluster (see 5.3.9) and the control display (#40). The light in the button flickers during automatic operation.

- Pressing this button during automatic operation brings the transition to a pause. Operation resumes when the button is pressed again.
- If the CUT button (3) is pressed during automatic operation, transition takes place immediately and automatic operation ends.
- If the fader lever (5) is moved during automatic opration, automatic operation is cancelled if the fader lever is moved beyond the progress by automatic operation. Manual operation with the fader lever then continues.

(5) Fader lever
Transition is executed in response to the movement of the fader lever. The lever moves from the top or the bottom to the opposite end, i.e., over a stroke defined by the upper and lower limits. The transition is complete when the lever runs through one stroke.

The actual direction that the lever moves does not affect the transition. The transition begins when movement of the lever starts and ends when the lever has been moved all the way to the other end — regardless of whether movement is from top to bottom or bottom to top.

Two arrow-shaped LEDs next to the lever indicate the direction the lever should be moved to complete the stroke: the direction is indicated by the illuminated LED. Illumination of the two LEDs alternates each time a transition is completed.

If the fader limit mode is entered (at the multi-purpose key cluster; see 5.3.9), the directional LEDs will blink. However, stroke direction will still be indicated.

The fader directional LEDs light simultaneously when

- the lever is not set to a limit position when the power is turned on;
- the AUTO or CUT button is pressed at the M/E sender cluster with the lever positioned midway;
- a fader value is received from an external unit.

In these cases, lever operation remains invalid until moved to the upper or lower limit. As soon as the lever reaches either limit, the normal operation of the lever resumes and the appropriate LED will light.

If the CUT button (3) is pressed before the lever has completed its stroke, transition takes place instantly. The lever then remains invalid unless it is moved fully to either limit.

Likewise, when the AUTO button (4) is pressed before the lever has completed its stroke, automatic transition starts from the position where the lever stopped and goes to the end. Lever operation remains invalid until it is moved fully to either limit. The time left in the transition is calculated based on the assumption that the position where the lever stopped is a full stroke position.

(6) Key on/off indicator lamp ***[KEY ON]***
The lamp lights when keying to the program line is taking place during or after a transition. If there is no keying, the lamp goes off.

5.3.4 DSK Sender Cluster

Outputs a DSK effect to the program line, i.e., applies additional keying to the program video signal created at the M/E sender cluster and puts it on air again. Unlike the M/E section, only the mix effect is available for transition. Manual operation is not possible either, with "cut" or "auto" operation only.

(1) DSK preview button ***[DSK PVW]***
Press this button to view the DSK setting before airing. Pressing this button again turns the light off. The button automatically turns off when fade-out is executed.

(2) Cut button ***[CUT]***
Press this button to instantly execute the DSK transition.

(3) Auto button ***[AUTO]***
Press this button to execute the DSK transition at a preset duration. Set the transition using the multi-purpose key cluster (see 5.3.9) and the control display (#40 menu). The button blinks during operation.

- Operation is reversed when this button is pressed during automatic operation. For instance, if transition is going toward ON, it is switched to OFF.
- DSK transition instantly takes place when the CUT button (2) is pressed during automatic operation.

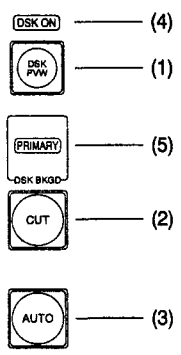

Fig. 5-7

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(4) DSK on/off indicator lamp ***[DSK ON]***
This lamp lights when the DSK effect is being applied to the on-air video signal during or after DSK transition. It goes off when there is no DSK effect.

(5) Program line warning lamp ***[PRIMARY]***
This lamp shows the state of the program line. Though not essential under normal circumstances, this lamp is of critical importance when sophisticated effects such as key looping are being performed. Use it to confirm the state of the program line, otherwise the desired effect may not take place.

- Lamp OFF : Usually the lamp remains off. The video signal created at the M/E sender cluster is on air and the DSK effect may be applied to it.
- Lamp ON : The lamp lights when a video signal input other than those from the M/E section is selected on the DSK background bus. The video signal selected on the DSK background bus is now on air and the DSK effect may be applied to it. As long as this lamp is illuminated, confirmation of any operation associated with the M/E sender cluster is not possible, even if the DSK effect is not in use.

If the PRIMARY lamp is mistakenly illuminated, press the DSK BKGD button at the crosspoint select cluster and then select M/E with the DSK BKGD BUS button. The lamp will go off.

5.3.5 Fade-out Control

Applies a fade out/in to a video signal on the primary bus.

(1) Fade out/in button ***[FADE TO BLACK]***
Press this button to execute the auto fade transition at a preset duration. Set the fade transition time using the multi-purpose key cluster (see 5.3.9) and the control display (menu #40). The button blinks during operation and lights when the transition is complete.

Pressing this button during auto fading reverses the operation, i.e. fade-out switches to fade-in and vice-versa.

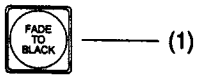

Fig. 5-8 Fade-out control

5.3.6 Wipe Pattern Select Cluster

To select the wipe pattern to be used in a transition. This is also used to set the wipe pattern for the preset pattern key as one of the keying effects.

Softness, aspect and other settings can be assigned to the wipe pattern selected. These characteristics can be set using the wipe setting menu (#30-1) on the control display. Press the WIPE PTN button in the multi-purpose key cluster or the WIPE button in the M/E cluster to call up the wipe settings menu.

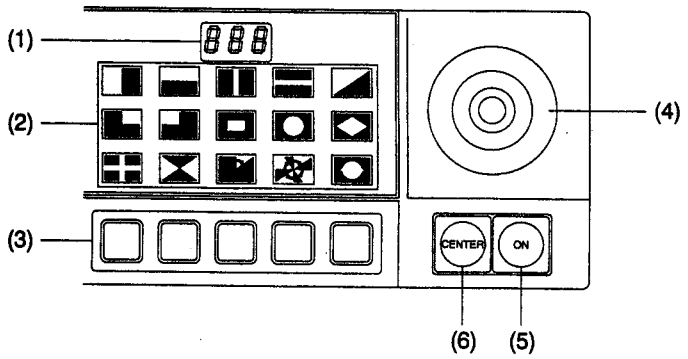

Fig. 5-9 Wipe pattern setting cluster

(1) Number indicator
Indicates the number assigned to the wipe pattern selected. This number can be used to select a wipe pattern on a video editor.

(2) Wipe pattern indicators
The symbol of the wipe pattern currently selected lights up. Wipe patterns other than those indicated here are also available. If a non-indicated wipe pattern is selected, the pattern number will be shown on the number indicator but none of the symbol indicators will light up.

(3) Wipe pattern select buttons
To select the wipe patterns indicated on the wipe pattern indicators (2). When a button is pressed, one of the symbols in the button's column will light up. The symbols light in sequence each time the button is pressed. Stop pressing the button once the desired wipe pattern symbol is illuminated. At the same time, the number assigned to the pattern selected appears on the number indicator (1).

Wipe patterns other than those indicated at (2) can be selected using the multi-purpose key cluster. (see 5.3.9) See the list in Chapter 6 for the wipe patterns available.

(4) Positioner stick
Moves the wipe pattern to the desired position. Stick operation is valid when the Positioner button (5) is illuminated. The positioner is center-biased, so that it automatically returns to its mechanical center when released during operation. The mechanical center does not affect wipe pattern position. Position depends on the orientation and inclination angle of the stick. The wipe pattern center moves in the direction in which the stick is inclined. The greater the angle, the faster the pattern moves during setting.

(5) Positioner ON/OFF button ***[ON]***
Press this button when using the positioner stick (4). The button alternates between ON and OFF each time it is pressed. If turned off, the wipe pattern returns to its initial position. The position set by the positioner is retained in memory, however, and restored when the button is turned on again.

(6) Positioner center button ***[CENTER]***
With this button pressed, the positon set and stored in memory by the positioner is cleared and the initial positon restored.

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5.3.7 Color Select Cluster

To select color signals used in various parts of the KM-5000.

The KM-5000 has six built-in color signal generators, which can be operated independently of one another.

- Back color : Used as an input signal to each bus
- Key matte color : Used as a key fill
- DSK matte color : Used as a DSK fill
- Wipe border color : Used to trim the border of the wipe
- Key border color : Used as the border of keyed-in signal.
- DSK border color : Used as the border of keyed in signal.

Pressing the button for any desired setting calls up the color setting menu (#10-1/2) on the control display. Particular settings can be done with the knobs and buttons below the control display. The color setting menu is also called up when any button associated with color is pressed.

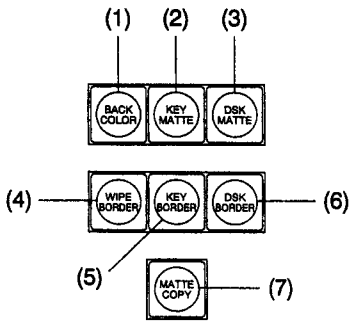

Fig. 5-10

Hue, saturation and luminance can be selected on the setting menu for each color. Gradation is also selectable for back color.

The color thus created can be stored in the color memory (see 5.4.10) and called up for later use. The matte copy facility enables you to reproduce the color at the touch of a button without using the color memory. For instance, back color can be copied to wipe border color.

(1) Back color setting & indicator button ***[BACK COLOR]***
Press this button when changing the back color setting. The button lights. Menu item #10-2 also appears when the BACK COLOR button at the crosspoint select cluster (see 5.3.2) is pressed.

(2) Key matte color setting & indicator button ***[KEY MATTE]***
Press this button to change the key matte color setting.

The button lights. Menu item #10-1 also appears when the MATTE button is pressed during key setting at the key/DSK setting cluster (see 5.3.8).

(3) DSK matte color setting & indicator button ***[DSK MATTE]***
Press this button to change the DSK matte color setting.

The button lights. Menu item #10-1 also appears when the MATTE button is pressed during DSK setting at the key/DSK setting clusetr (see 5.3.8).

(4) Wipe border color setting & indicator button ***[WIPE BORDER]***
Press this button to change the wipe border color setting. Menu item #10-1 will appear.

(5) Key border color setting & indicator button ***[KEY BORDER]***
Press this button to change the key border color setting. Menu item #10-1 will appear.

(6) DSK border color setting & indicator button ***[DSK BORDER]***
Press this button to change the DSK border color setting. Menu item #10-1 will appear.

(7) Matte copy button ***[MATTE COPY]***
To copy color data from setting to another. Follow the steps below.

1) Select the copy source by pressing one of the color buttons (1) to (6).
2) Press MATTE COPY. The button blinks, indicating that the target color data is ready for selection.
3) Select the target color with the color buttons (1) to (6).

For instance, if the color data selected for back color is to be used for key border color, simply press ***[BACK COLOR]***, ***[MATTE COPY]*** and ***[KEY BORDER]*** in that order.

The MATTE button goes off when copying is complete. If the button is pressed again before selecting the target color, the copy mode is cancelled and the button light goes off.

5.3.8 Key/DSK Setting Cluster

Used to perform settings associated with keying at the M/E sender cluster (see 5.3.3) and DSK at the DSK sender cluster (see 5.3.4). The values set for keying and DSK are stored in memory separately for each video signal input. Keying data and DSK data are also stored separately even when the input signal is the same.

Set values are stored in memory for the following ten items.

- Source seleced (types of key effects)
- Fill selected
- Clip level
- Gain
- Unity-gain ON/OFF
- Hue of chroma key
- External key input channel
- Source polarity (inverted / non-inverted)
- Mask setting
- Border setting

Keying data and DSK data for any of these items can be instantly exchanged with each other. Exchanging data makes setting priorities appear to be reversed.

Pressing any button in the key/DSK setting cluster automatically calls up the corresponding setting menu on the control display. Setting can be done with the knobs and buttons below the control display.

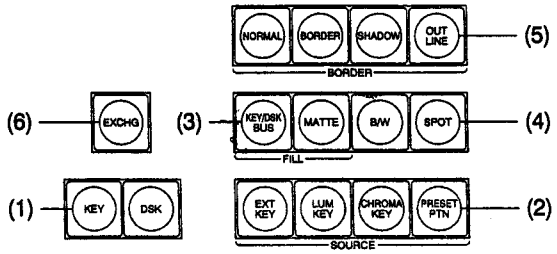

Fig. 5-11 Key/DSK setting cluster

(1) Key/DSK select buttons ***[KEY] [DSK]***
Press the button corresponding to the desired setting. The button pressed lights, while the other remains off. These buttons also can be used to assign the key bus/DSK bus input select buttons at the crosspoint select cluster.

- ***[KEY]*** Press this button for keying. Buttons (2) — (5) at the key/DSK setting cluster now serve as keying setting buttons. At the same time, the key bus input select button is turned on at the cross point select cluster. The control display shows the key settig menu for the input currently selected for the key bus.

- ***[DSK]*** Press this button for DSK. Buttons (2) — (5) at the key/DSK setting cluster now serve as DSK setting buttons. At the same time, the DSK bus input select button is turned on at the cross point select cluster. The control display shows the key settig menu for the input currently selected for the DSK bus.

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(2) Source select buttons ***[EXT KEY] [LUM KEY] [CHROMA KEY] [PRESET PTN]***
For selection of key sources or DSK sources. The buttons pressed light and the others go off.

- ***[EXT KEY]*** One of the external key inputs (EXT inputs) serves as a key source. The type of key effect is luminance key. The control display shows the setting menu (#01-1). Noise appears on the screen if the EXT KEY is keyed when no video signal is applied to the EXT input.
- ***[LUM KEY]*** The luminance component of a video signal input selected for the key bus or DSK bus serves as a key source. The type of key effect is luminance key. The control display shows the setting menu (#01-2).
- ***[CHROMA KEY]*** With a specific color excluded from the video input selected for the key bus, the rest of the video signal serves as a key source. The type of key effect is chroma key. The control display shows the setting menu (#01-3).
- ***[PRESET PTN]*** A wipe signal generated at a wipe pattern generator serves as a key source. The type of key effect is pattern key. The control display shows the pattern setting menu (#30-1).

(3) Fill video select buttons ***[KEY/DSK BUS] [MATTE]***

- ***[KEY/DSK BUS]*** The video input selected for the key bus or DSK bus serves as a fill video signal. The control display shows the menu (#01-1/2/3) for setting.
- ***[MATTE]*** Key matte color or DSK matte color serves as a fill video signal. The control display shows the key matte color setting menu (#10-1) or the DSK matte color setting menu (#10-1). At the same time, the KEY MATTE or DSK MATTE button at the color select cluster (see 5.3.7) lights. The MATTE COPY button is forced to turn off.

(4) Effect select buttons ***[B/W] [SPOT]***
Used to select key effects. ***[B/W]*** and ***[SPOT]*** can be pressed independently.

- ***[B/W]*** Turns a fill video black & white. This button is invalid when the ***[MATTE]*** button is illuminated. If the ***[MATTE]*** button is pressed, the B/W button goes off.
- ***[SPOT]*** Reduces the signal level of the fill video to half. This produces a spot light effect when used together with pattern key. Like the ***[B/W]*** button, this is invalid when the ***[MATTE]*** button is illuminated.

An example of effective use of the SPOT effect is shown below together with a screen image obtained using this effect.

- Cross point : Select the same input for the key bus and the program bus.
- Key setting : Select ***[PRESET PTN], [KEY/DSK BUS]*** and ***[SPOT]***
- Wipe setting : Select the wipe number 109 (round wipe, REV ON).

Fig. 5-12 Example of spot effect

(5) Border select buttons ***[NORMAL] [BORDER] [SHADOW] [OUTLINE]***
Used to select border effects. Unlike the border effect for wipe pattern or preset pattern key, the border effect here is applied directly to the key hole created from the key source signal. A choice of three effects is available, ***[NORMAL]***, ***[BORDER]*** and ***[SHADOW]***. The button pressed lights, the others go off. The ***[OUTLINE]*** button can be turned on and off independently.

- ***[NORMAL]*** No border effect. The ***[OUTLINE]*** button automatically goes off. The control display shows the menu (#01-1/2/3) for key setting.
- ***[BORDER]*** Applies a border effect to key or DSK. The control display shows the menu (#03) for border setting.
- ***[SHADOW]*** Applies a shadow effect to key or DSK. The control display shows the menu (#03) for border setting.
- ***[OUTLINE]*** Adds an outline effect to border effect or shadow effect. When this button is pressed with ***[NORMAL]*** illuminated, ***[BORDER]*** or ***[SHADOW]*** is also illuminated.

(6) Key/DSK exchange button ***[EXCHG]***
Pressing this button exchanges the set data between key bus and DSK. As a result, the priority of keying and DSK appears reversed. This exchange cannot be executed if the fader lever is part way through a stroke or during automatic operation at M/E and DSK.
Exchange takes place for the following items.

- Keying setting for a video input
- Input selected
- Keying ON or OFF

In keying setting, if the inputs selected for key bus and DSK bus are different, then

- the keying setting for the selected input on the key bus is exchanged with that for the same input on the DSK bus;
- the DSK setting for the selected input on the DSK bus is exchanged with that for the same input on the key bus.

■ This function can also be controlled via GPI (see 5.4.9).

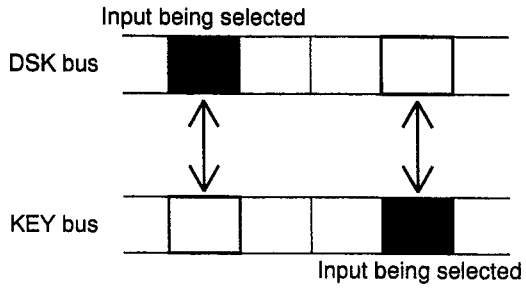

Fig. 5-13 Example of exchange operation

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5.3.9 Multi-Purpose Key Cluster

Used for multiple purposes such as calling up a setting menu on the control display, entry of numerical values, and turning various functions on and off.

These buttons usually serve as menu callup buttons and function on/off buttons, but not as a ten-key pad. The ten-key mode is only available when the multi-purpose keys are used to activate a setting mode.

The ENT button lights when the ten-key mode is entered, but the other buttons do not light regardless of the operation mode.

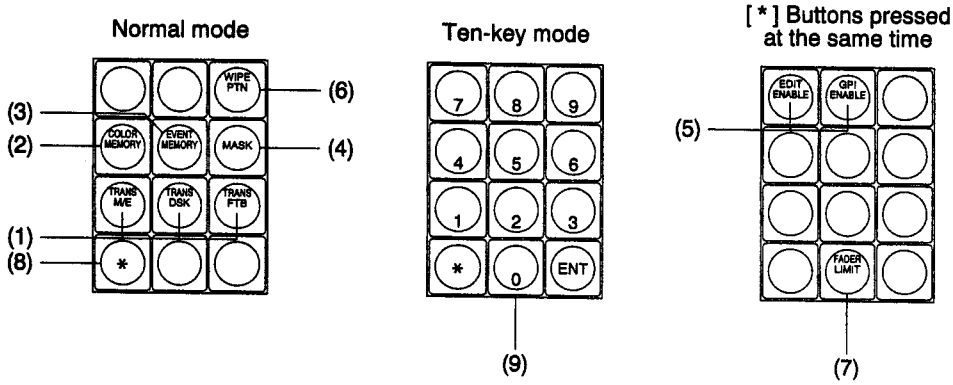

Fig. 5-14 Multi-purpose key cluster

(1) Transition time setting & display buttons ***[TRANS M/E] [TRANS DSK] [TRANS FTB]***
Press these buttons when setting transition time. Pressing one of these buttons calls up the transition time setting menu (#40) on the control display. The multi-purpose key cluster will enter the ten-key mode.

- ***[TRANS M/E]*** To set the transition time for auto operation by the auto button at the M/E sender cluster.
- ***[TRANS DSK]*** To set the transition time for auto operation by the auto button at the DSK sender cluster.
- ***[TRANS FTB]*** To set the transition time for auto operation by the fade out/in button at the fade-out section.

On each setting menu, all three transition times are simultaneously indicated. These can be adjusted with the knobs or through ten-key entry using the multi-purpose key cluster. Ten-key entry is valid for the data associated with the button pressed first. For instance, when the [TRANS M/E] button is pressed, the duration for M/E transition can be entered through via the "ten key pad", while DSK and FTB transition times can be entered only by turning the knob.

To cancel the currently set multi-purpose key mode, call up another setting menu. If the ten key entry mode is cancelled before the ENT button is pressed, any values already entered become invalid.

(2) Color memory setting & display button ***[COLOR MEMORY]***
Press this button to use the color memory. Pressing this button activates the setting mode and calls up the color memory setting menu (#50) on the control display, where read and write of color memory are executed. Color memory setting is applied to the color being selected at the color select cluster (see 5.3.7).

In the setting mode, color memory numbers can be numerically entered using the multi-purpose keys.

Be sure to press the ENT button after entering a numerical value, otherwise the entered values will not be valid. To cancel the setting mode, call up another setting menu.

The color memory offers 32 colors in total including 9 preset colors and 23 user colors. Desired colors can be stored as user colors, including gradations for back color.

(3) Event memory setting & display button ***[EVENT MEMORY]***
Press this button to use the event memory. Pressing this button activates the setting mode and calls up the event memory setting menu (#51) on the control display, where read and write of event memory are executed. Event memory setting is applied to the current settings on the control panel.

In the setting mode, event memory numbers can be entered with the multi-purpose keys.

Be sure to press ENT after making an entry, otherwise the entered values will not be valid. To cancel the setting mode, call up another setting menu.

The event memory can hold 16 events each containing the data listed below.

- ON/OFF status of buttons and lamps (except for the bus assign buttons shown in Fig. 5-5(2) and Fig. 5-11(1).)
- All control values
- All color settings

Note: *The status of the EDITOR lamp cannot be stored in the event memory.*

(4) Masking setting & display button ***[MASK]***
Press this button to set masking for key or DSK. Pressing this button calls up the masking setting menu (#02) on the control display. Setting is executed by the knobs and buttons below the control display. The same menu is also called up when masking is selected from the key or DSK setting menu (#01-1/2/3).

Masking is box-shaped. Box size can be set as desired. Masking may be inside or outside the box.

(5) External control acceptance buttons ***[EDIT ENABLE]*** ***[GPI ENABLE]***
To enable or disable control via external equipment. To avoid operational errors, these buttons are only valid when pressed together with the ***[*]*** button. Each time a button is pressed, it alternates between enable and disable.

- ***[EDIT ENABLE]*** Enables or disables control via external units connected to the main unit EDITOR connector, EXTERNAL INTERFACE connector, and AUDIO INTERFACE connector. If enabled, the EDITOR lamp lights (see 5.3.10).
- ***[GPI ENABLE]*** Enables or disables control via units connected to the main unit GPI terminals. If enabled, the GPI lamp lights (see 5.3.10).

(6) Wipe pattern number setting button ***[WIPE PTN]***
Press this button to use wipe patterns not indicated on the wide pattern indicators in the wipe pattern select cluster (see 5.3.6) or when setting wipe pattern characteristics. Pressing this button activates the setting mode and calls up the wipe setting menu (#30-1) on the control display. In the setting mode, desired wipe pattern numbers can be entered with the multi-purpose keys.

The existing wipe pattern will change when new value is entered and the ENT button is pressed.

- The numbers entered are indicated digit by digit on the number indicator of the wipe pattern select cluster.
- Be sure to press the ENT button after making an entry, otherwise the entered value will not be valid.
- To cancel the setting mode, press the pattern select button on the wipe pattern select cluster or call up another setting menu. If setting is cancelled before pressing the ENT button, entered wipe numbers will not be valid.
- Although pressing the ENT button cancels the ten key mode, the wipe setting menu remains available.

(7) Fader limit memory button ***[FADER LIMIT]***
Used to set the fader limit function. This function stops the transition at a desired position partway through the stroke during transitions at the M/E sender cluster.

Follow the steps below to set the fader limit.

1) While monitoring the program monitor, move the fader lever to the position where transition is to stop.
2) Press the ***[FADER LIMIT]*** button while pressing the ***[*]*** button.

The current fader position is stored in memory as a fader limit, and the fader limit mode is entered. This operation is invalid if the fader lever is at the start positon.

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The fader mode is different from normal modes in the following respects.

- Fader lever movement has no affect when it goes beyond the fader limit.
- "Auto" transition takes place between the fader limit and the start position over a specified duration.
- "Cut" operation is executed somewhere between the fader limit and the start positon.
- NO flip flop operation takes place between buses (see 1.4.1).
- The LEDs to the left side of the fader lever blink instead of lighting.

To cancel the fader limit mode, return the fader lever to the start positon and press the ***[FADER LIMIT]*** button while pressing the ***[*]*** button.

(8) Utility button ***[*]***
Buttons (5) and (7) will only function whe n pressed together with the utility button..

(9) Ten key pad ***[0-9] [ENT]***
The multi-purpose key cluster can be used as a ten key pad, but only in setting modes entered using this key cluster.

- ***[0-9]*** Used for numerical entry
- ***[ENT]*** Fixes the numerical values enterd and cancels the setting mode. The values entered are valid only when followed by pressing this key.

5.3.10 External control acceptance indicators *[EDITOR] [GPI]*

Lamps indicating enable or disable of control via external units. When a lamp is illuminated, external control is enabled. Switching between enable and disable is performed by the multi-purpose key cluster.

- ***[EDITOR]*** Indicates that control via external units (such as a video editor) connected to the main unit EDITOR, EXTERNAL, INTERFACE and AUDIO INTERFACE connectors is enabled.
- ***[GPI]*** Indicates that control via units connected to the main unit GPI terminal is enabled.

5.4 Menu Items and Usage of the Control Display

5.4.1 List of menu items

The list of items available on the control display is given below. The diagram on next page shows how the control panel buttons are linked with the menu items.

- The values referred to as default are those set at factory. Since the KM-5000 retains settings in memory even with the power turned off, default does not mean the initial values entered when the power is turned on again.
- The set data is renewed in real time when the knob is turned or the button is pressed.

Table 5-1 List of menu items

ID (Menu No.)	Uses	Section
#01-1	Setting EXT (external) key	5.4.3
#01-2	Setting LUM key	
#01-3	Setting chroma key	
#02	masking	5.4.4
#03	Setting key/DSK border	5.4.5
#10-1	Setting color other than back color	5.4.6
#10-2	Setting back color	
#20	Setting test signal	5.4.7
#30-1	Basic setting of wipe pattern	5.4.8
#30-2	Expanded setting of wipe pattern	
#40	Setting transition time and GPI setting	5.4.9
#50	Setting color memory	5.4.10
#51	Setting event memory	5.4.11
#60	Display of software versions	5.4.12
None	Opening message	
None	Error message	

5.4.2 Detailed descriptions are provided for each menu.

Items included in each menu description are indicated below.

<ID No.> ID number and sub-number of the setting menu

<Use> Describes when or how the menu is used

<Callup method> Describes how to call up the menu

<Functions of knobs and buttons> Describes what and how changes are made by operating the knobs and buttons

Other explanations are given as required.

EXT key setting menu

#01-1

CLIP	GAIN	UNI	EXT	INV	MASK	01
xxx	xxx	Off	x	Off	Off	-1

#02 (OFF → ON)

LUM key setting menu

#01-2

CLIP	GAIN	UNI		INV	MASK	01
xxx	xxx	xxx		Off	Off	-2

#02 (OFF → ON)

CHROMA key setting menu

#01-3

CLIP	GAIN	HUE		INV	MASK	01
xxx	xxx	xxx		Off	Off	-3

#02 (OFF → ON)

Masking setting menu

#02

←	→	↑	↓	AREA	MASK	02
xxx	xxx	xxx	xxx	Out	On	

#01-1/2/3 (OFF → ON)

Border setting menu

#03

HUE	SAT	LUM	POSI	STEP	INTEN	03
xxx	xxx	xxx	Center	2	Full	

Color setting munu

#10-1

HUE	SAT	LUM				10
xxx	xxx	xxx				-1

Back color setting menu

#10-2

HUE	SAT	LUM	◢LUM	MODE		10
xxx	xxx	xxx	xxx	Off		-2

Built-in test signal setting menu

#20

SIGNAL						20
x						

Wipe pattern setting menu-1

#30-1

PSTSZ	SOFT	BDR	ASPECT	REV	MENU	30
xxx	xx	xx	xxx	On	More	-1

#30-2

Wipe pattern setting menu-2

#30-2

PITCH					MENU	30
x					Home	-2

#30-1

Transition time and GPI setting menu

#40

M/E	DSK	FTB		GPISEL		40
xxx	xxx	xxx		M/E		

Color memory setting menu

#50

COLOR						50
xx				Read	Store	

Event memory setting menu

#51

EVENT	AREA					51
xx	All			Read	Store	

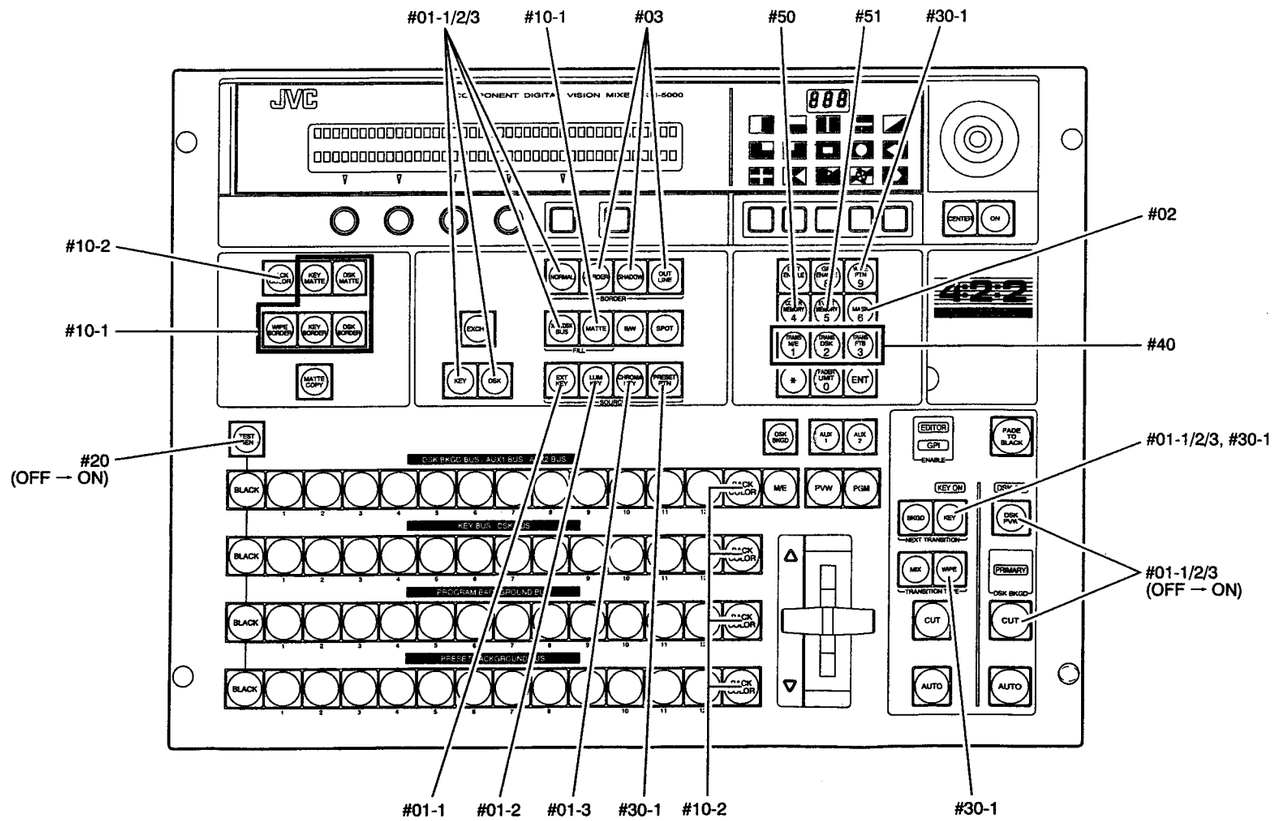

Fig. 5-15 How the buttons are linked with display items

5.4.3 Key/DSK setting menu

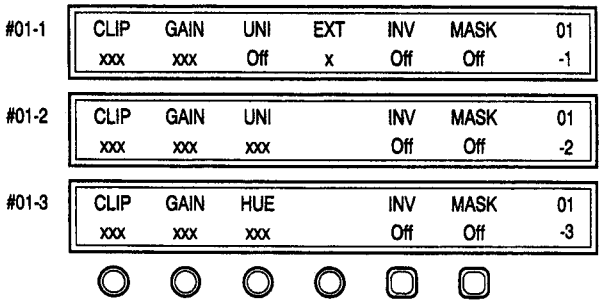
#01-1
CLIP GAIN UNI EXT INV MASK 01
xxx xxx Off x Off Off -1
#01-2
CLIP GAIN UNI INV MASK 01
xxx xxx xxx Off Off -2
#01-3
CLIP GAIN HUE INV MASK 01
xxx xxx xxx Off Off -3

Fig. 5-16 Key/DSK setting menu

<ID No.> #01-1 : EXT (external) key setting menu
#01-2 : LUM key setting menu
#01-3 : CHROMA key setting menu

<Use> To set key or DSK.

<Callup method> Press one of the following buttons.
- M/E sender cluster [KEY]
- DSK sender cluster [DSK PVW Off → On] [CUT Off → On]
- Key/DSK setting cluster [KEY] [DSK] [EXT KEY] [LUM KEY] [CHROMA KEY] [NORMAL] [KEY/DSK BUS]
- Masking setting menu (#02) [MASK On → Off]

When the input video is selected on key bus and DSK bus at the cross point select cluster with this menu displayed, the data displayed on this menu are automatically exchanged to those of the key or DSK for the selected input.

<Functions of knobs and buttons>

Table 5-2 Key/DSK setting details

symbol	Functions	Range Set at ( ) at factory
CLIP	Setting clip level of key/DSK source signal.	0 – 100 (50)
GAIN	Setting gain of key/DSK source signal.	1 – 100 (50)
HUE	Setting hue of chroma key. Unit in degree. Chroma key (#01-3) only displayed. Returns to 0 when exceeding 359.	0 – 359 (0)
UNI	Turns unity-gain on and off. When turned on, CLIP and GAIN reach certain values and are no longer variable. No display for chroma key (#01-3), with CLIP and GAIN changeable.	On/(Off)
EXT	Selects input for EXT key. EXT key (#01-1) only to be displayed.	1 – 6 (1)
INV	Sets polarity of key/DSK source. Turns on and off every time the button is pressed.	On: reverse Off: not reverse
MASK	Turns key/DSK SIGNAL masking on and off. Goes on and off every time the button is pressed. When turned on, the masking setting menu (#02) is called up.	On/(Off)

5.4.4 Masking setting menu

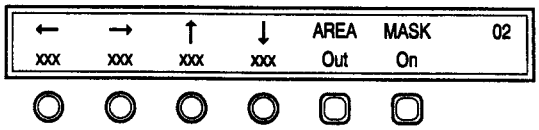

Fig. 5-17 Masking setting menu

<ID No.> #02

<Use> To set masking for key or DSK

<Callup method> Press one of the following buttons.

- Multi-purpose key cluster : [MASK]
- Key/DSK setting menu (#01-1, 2, 3) : [MASK Off → On]

<Functions of knobs and buttons>

Table 5-3 Masking setting details

Symbol	Functions	Range Set at ( ) at factory
←	Sets the left end of masking menu. Data: percentage (%) of the horizontal width of screen using the left end of screen as a reference.	0 – 100 (25)
→	Sets the right end of masking menu. Data: percentage (%) of the horizontal width of screen using the left end of screen as a reference.	0 – 100 (75)
↑	Sets the top end of masking menu. Data: percentage (%) of the vertical height of screen using the top of screen as a reference.	0 – 100 (25)
↓	Sets the lower end of masking menu. Data: percentage (%) of the vertical height of screen using the top of screen as a reference.	0 – 100 (75)
AREA	Sets the area to be masked. In/Out alternate each time the buttonis pressed.	In: Inside (Out): Outside
MASK	Turns masking on and off. On/Off alternate every time the button is pressed. When turned off, key/DSK setting menu (#01-1,2,3) is called up.	On/Off

5.4.5 Border setting menu

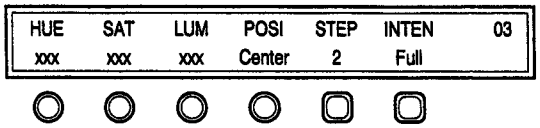

Fig. 5-18 Border setting menu

<ID No.> #03

<Use> To set border for key or DSK

<Callup method> Press one of the following buttons.

• Key/DSK setting cluster : [BORDER] [SHADOW] [OUT LINE]

<Functions of the knobs and buttons>

Table 5-4 Border setting details

Symbol	Functions	Range Set at ( ) at factory
HUE	Sets hue. Unit: degree.	0 – 359
SAT	Sets saturaton.	0 – 100
LUM	Sets luminance. Percentage of the 100 % color bars.	0 – 100
POSI	Sets the border position relative to the key/DSK source. When [SHADOW] is selected, Center cannot be selected. If Center is selected at BORDER then switched to SHADOW, the range is set at right bottom. When STEP is set at 2 (thick) for [BORDER], POSI cannot be turned. In this case, border positon always remains at center.	← ↓ left bottom ← left ← ↑ left top ↑ top ↑ → right top → right ↓ → right bottom ↓ bottom CENTER center
STEP	Set the border width. Stepwise values.	(1) : thin 2 : thick
INTEN	Sets the extent of mixture of border with background	Half/(Full)

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5.4.6 Color setting menu

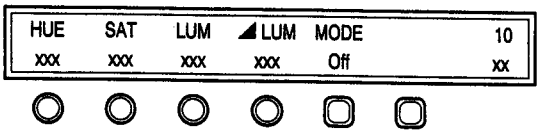


Fig. 5-19 Color setting menu

<ID No.> #10-1 : Setting color other than back color
#10-2 : Setting back color

<Use> To set color signals

<Callup method> Press one of the following buttons.

- Crosspoint select cluster: [BACK COLOR] (#10-2)
- Key/DSK setting cluster: [MATTE] (#10-1)
- Color select cluster: [BACK COLOR] [KEY MATTE] [DSK MATTE] [WIPE BORDER] [KEY BORDER] [DSK BORDER]

<Functions of the knobs and buttons>

Table 5-5 Color setting details

Symbol	Functions	Range Set at ( ) at factory
HUE	Sets hue. Unit: degree.	0 – 359
SAT	Sets saturaton.	0 – 100
LUM	Sets luminance. Percentage of the 100 % color bars.	0 – 100
Data below is displayed only on #10-2.		
◢ LUM	Sets the luminance at the end point of gradation. Percentage to the 100 % color bars.	–50 – 50(0)
MODE	Sets direction and on/off of gradation.	(Off):gradation turned off H: horizontal V: vertical

When the color being created exceeds a specified signal level, the SAT value is forcibly suppressed below the specified level. The suppressed SAT value is not automatically restored to its initial value. For example, although raising the LUM value too high results in a reduced SAT value, reducing the LUM value will not increase the SAT value. Reset the SAT value manually as required.

<Colors set at factory>

[BACK COLOR] : Preset color 1 (blue)
[KEY MATTE] : Preset color 2 (red)
[DSK MATT] : Preset color 3 (magenta)
[WIPE BORDER] : Preset color 4 (green)
[KEY BORDER] : Preset color 5 (cyan)
[DSK BORDER] : Preset color 6 (yellow)

5.4.7 Built-in test signal setting menu

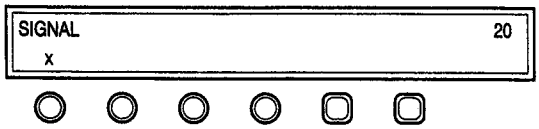


Fig. 5-20 Built-in test signal setting menu

<ID No.> #20

<Use> To select a signal generated by the built-in signal generator. The signal selected can be used as an input video to each bus.

<Callup method> Press the following button.

- Crosspoint select cluster: [TEST GEN off → on]

Pressing the TEST GEN button when illuminated switches the current menu #20 to the preceding menu.

<Functions of the knobs and buttons>

Table 5-6 Built-in test signal setting details

Symbol	Functions	Renge Set at ( ) at factory
SIGNAL	Selects types of test signals.	(1): Color bars 2: Valid ramp 3: Multi-burst

5.4.8 Wipe pattern setting menu

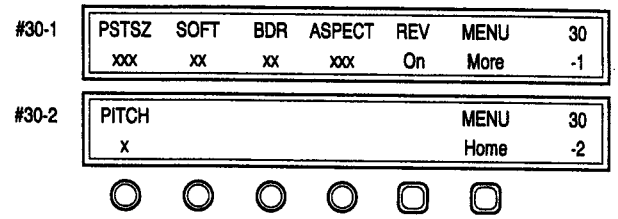


Fig. 5-21 Wipe pattern setting menu

<ID No.> #30-1 : Basic setting
#30-2 : Expanded setting

<Use> To set wipe patterns. The wipe patterns set here are also used as source signals for transition effects and pattern keys.

<Callup method> Press one of the following buttons to call up #30-1. #30-2 is the sub-menu of #30-1 and can be called up on the main menu #30-1.

- M/E sender cluster : [WIPE]
- Multi-purpose key cluster : [WIPE PTN]
- Key/DSK setting cluster : [PST PTN]

<Functions of the knobs and buttons>

Table 5-7 Wipe pattern setting details

Symbol	Functions	Renge Set at ( ) at factory
PTSZ	Sets size of preset pattern key's source pattern. Data: Percentage (%) of the maximum.	0 – 100 (50)
SOFT	Sets the degree of softening of the pattern border. No softening at 0. The greater the value, the more softening.	0 – 100 (0)
BDR	Sets pattern border width in 256 steps. Value as a reference.	0 – 100 (0)
ASPECT	Sets pattern's aspect ratio. Values greater than 0 horizontally compress the pattern, values smaller than 0 vertically compress the pattern.	–50 – (0) – 50
REV	Sets direction in which pattern changes. With OFF (normal), the pattern changes in the direction in which the white area in the wipe pattern indicator symbol expands. With ON (reverse), it changes in the direction in which the black area expands.	Off/On (Off)
MENU	Calls up the expanded setting menu (#30-2)	None

Table 5-8 Wipe pattern setting details (#30-2)

PITCH	Sets the degree to which the pattern grid-like. Not applicable to some patterns. The greater the value, the rougher the grid.	1 – 4 (1)
MENU	Calls up the basic menu.	None

5.4.9 Transition time and GPI setting menu

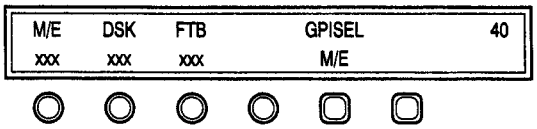


Fig. 5-22 Transition time and GPI setting menu

<ID No.> #40

<Use> To set the auto transition time and GPI function.

<Callup method> Press one of the following buttons.
- Multi-purpose key cluster: [TRANS M/E] [TRANS DSK] [TRANSK FTB]

<Functions of the knobs and buttons>
When this menu is displayed, the multi-purpose key cluster can be used as a ten key pad for numerical entry. Plese note that entry through the ten-key pad facility is valid only for the data specified by the multi-purpose key when calling up this menu. Numerical entry via the ten-key pad must be validated by pressing the ENT button.

Table 5-9 Transition time setting details

Symbol	Functions	Renge Set at ( ) at factory
M/E	Sets transition time in frames specified by auto button at M/E sender. Cut-start at 0.	0 – 999 (100)
DSK	Sets transition time in frames specified by auto button at DSK sender. Cut-start at 0.	0 – 999 (100)
FTB	Sets fade-out/in time in frames specified by Fade-out section. Cut-start at 0.	0 – 999 (100)
GPISEL	Sets auto operation started when a trigger is applied to the main unit GPI terminal's "SEL". KEY EXCHG to start when set to Exchg is not auto operation but can be trigger-operated.	M/E : M/E AUTO Dsk : DSK AUTO Ftb : FTB Exchg : KEY EXCHG

5.4.10 Color memory setting menu

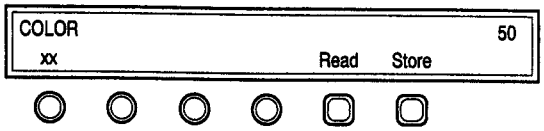


Fig. 5-23 Color memory setting menu

<ID No.> #50

<Use> To read from or write to color memory

<Callup method> Press the following button.
- Multi-purpose key cluster : [COLOR MEMORY]

<Functions of the knobs and buttons>
When this menu is displayed, the multi-purpose key cluster can be used as a ten key pad for numerical entry.
Numerical entry via the ten-key pad must be validated by pressing the ENT button.

Table 5-10 Color memory setting details

Symbol	Functions	Renge Set at ( ) at factory
COLOR	Sets memory No. Read or write does not take place when turning this knob until the Read or Store button is pressed.	(1)-9: preset color 10-32: user color
Read	Changes the color selected by the color select cluster to the color in the memory selected by the COLOR knob.	None
←Read (Direct read)	Once this button is pressed, the COLOR knob enters the direct read mode, where memory color is read out just by turning the knob. Pressing the button again restores the normal mode.	
Store	Color selected at color select cluster is stored in memory selected by COLOR knob.	None

<Preset color>

1 : Blue
2 : Red
3 : Magenta
4 : Green
5 : Cyan
6 : Yellow
7 : White (100 %)
8 : White (75 %)
9 : White (50 %)

5.4.11 Event memory setting menu

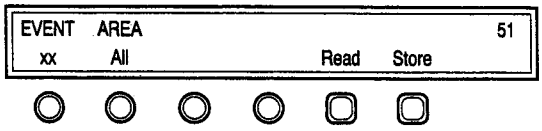


Fig. 5-24 Event memory setting menu

<ID No.> #51

<Use> To read or write event memory

<Callup method> Press the following button.
- Multi-purpose key cluster: [EVENT MEMORY]

<Functions of the knobs and buttons>
When this menu is displayed, the multi-purpose key cluster can be used as a ten key pad for numerical entry. Numerical entry via the ten-key pad must be validated by pressing the ENT button.

Table 5-11 Event memory setting details

Symbol	Functions	Renge Set at ( ) at factory
EVENT	Sets memory No. Read or write does not take place when turning this knob until Read or Store button is pressed.	1 – 16 (1)
AREA	Specifies an area for the event read-out data. Effective only for the READ button.	(All), Buses, Eff, Key, Dsk, Color, Wipe
Read ←Read (Direct read)	Changes the current status of the control panel to the memory selected by EVENT knob. Once this button is pressed, the EVENT knob enters the direct read mode, where an event is read out on the control panel just by turning the knob. Pressing the button again restores the normal mode. In cases where the display changes in link with the event, direct read does not take place.	None
Store	Current status of control panel is stored in the memory selected by the EVENT knob.	None

When reading out event memory, the control display may switch from the event memory setting menu to a display responsive to the read-out data, as soon as readout is finished.

MC-Service

5.4.12 Other Menus

(1) Opening message

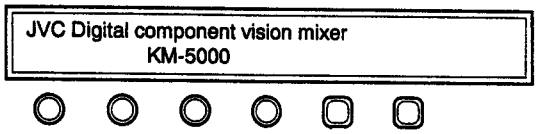


Fig. 5-25 Opening message

Displayed for about a second when turning the power on or resetting hardware.

(2) Software version display

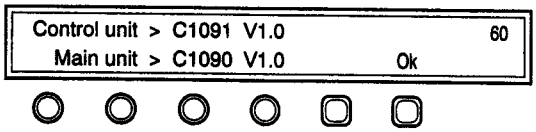


Fig. 5-26 Software version display

This display comes up when the control unit receives the version information from the main unit to indicate software versions for both the control unit and main unit. It usually stays on during the initial communications period of about 3 to 4 seconds following the opening message, and then switches automatically to the key/DSK setting menu.

- When the version information is received on any menu display other than opening message, press the OK button to recover the menu.
- The software version display may stay for a prolonged time if line trouble occurs during initial communications, but will usually go off after 20 to 30 seconds.
- When the power of the control unit is turned off and on again during operation, the initial communications may be entered without showing the version display.
- The software versions indicated in Fig. 5-26 are only examples and may be different from those of the actual units.

(3) Error messages

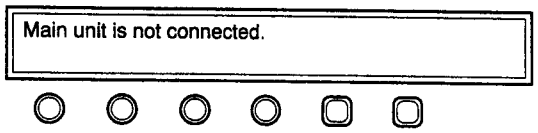


Fig. 5-27 Error messages

Displayed when problems occur such as a disconnected communications cable or the main unit power is turned off. No operations are accepted as long as this display is shown.
Once the problem has been remedied, the previous menu does not resume because initial communications must be executed again.

6. LIST OF WIPE PATTERNS

6.1 Types of wipe pattern

The following wipe patterns are available with the KM-5000. Wipe goes forward in the directon in which the white area within the pattern symbol is expanded. When REVERSE is turned on the wipe setting menu (#30-1), the direction is reversed so that wipe proceeds with the black area being expanded.

While patterns 1 through 15 can be selected directly by the wipe select buttons, those after No. 16 must be entered through the ten key pad (see 5.3.9).

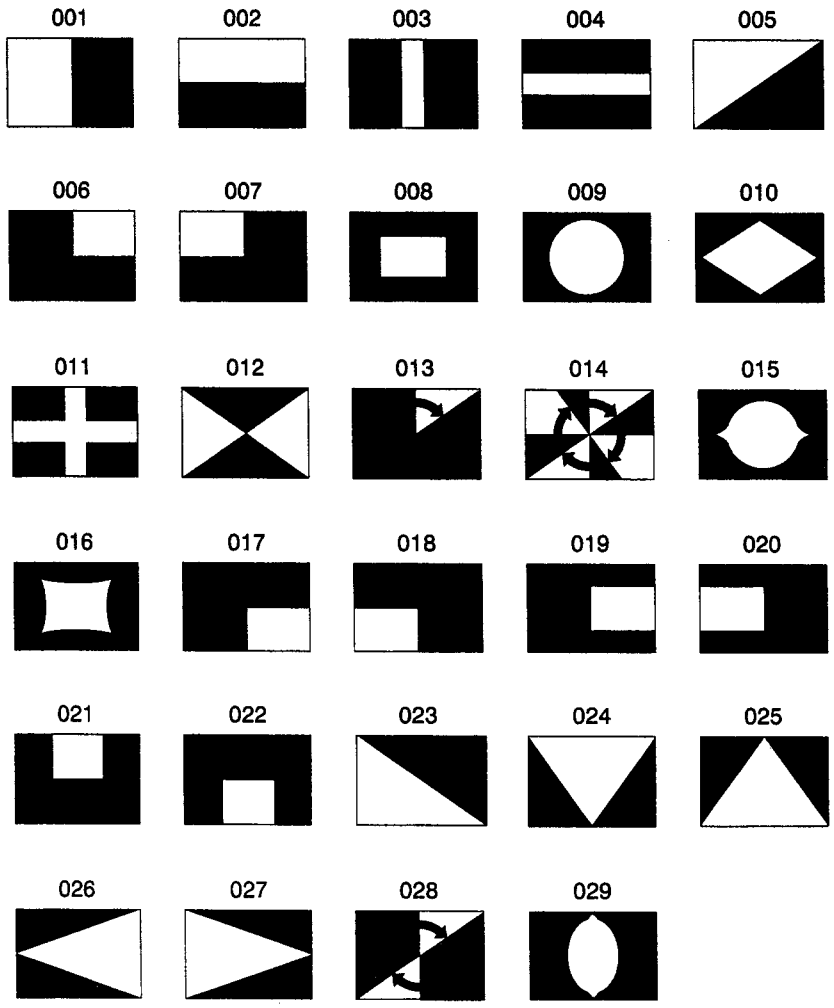


Fig. 6-1 List of wipe patterns

6.2 Range of Wipe Pattern Numbers.

The table below shows the range of wipe pattern numbers. Adding 100 by 100 to the normal pattern numbers gives the numbers of the patterns with reverse and PITCH effects.

Table 6-1 Range of pattern numbers

Range of Nos.	Pattern status
0 – 98	Normal pattern
99	Fixed pattern for video editors
100 – 199	Reverse pattern
200 – 299	Normal pattern with PITCH effect level 1 added
300 – 399	Normal pattern with PITCH effect level 2 added
400 – 499	Normal pattern with PITCH effect level 3 added
500 – 599	Normal pattern with PITCH effect level 4 added

- Pattern No. 001 in Fig. 6-1 is selected when any number outside the range is specified.
- When the KM-5000 is controlled from a video editor, there may be only 256 pattern numbers (0-255 or 1-256) selectable depending on the editor. In this case, select a deisred wipe pattern No. in advance on the control panel, then select pattern No. 99 on the editor. Upon receiving the pattern No. 99, the KM-5000 gives priority to the wipe pattern No. selected on the control panel.

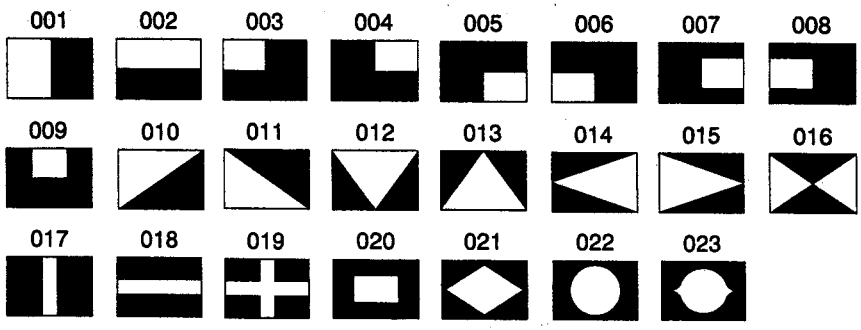
6.3 Pattern Code Scheme

Wipe pattern numbers can be made exchangeable with those in the JVC KM-3000 or GVC Model 100 by setting the dip switches inside the main unit. While it is possible to set the control unit and external units 1 (EDITOR) and 2 (EXTERNAL INTERFACE) differently, it is recommended that settings be the same for all units to avoid confusion.
See chapter 7 to set the dip switches.

6.3.1 KM-3000 exchangeable code

The diagram below shows the KM-5000 wipe pattern numbers exchangeable with those of the KM-3000. The patterns not available on the KM-3000 are also usable with the numbers below.

KM-3000 exchangeable numbers



Patterns not available in KM-3000

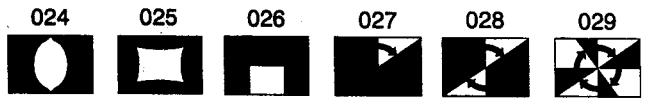


Fig. 6-2 KM-3000 exchangeable code

6.3.2 Model 100 exchangeable code

The diagram below shows the KM-5000 wipe pattern numbers exchangeable with those of the GVG Model 100.

The numbers in [ ] are also exchangeable with those of the Model 300 (the parent model of the Model 100). The numbers in ( ) are specific to the KM-5000.

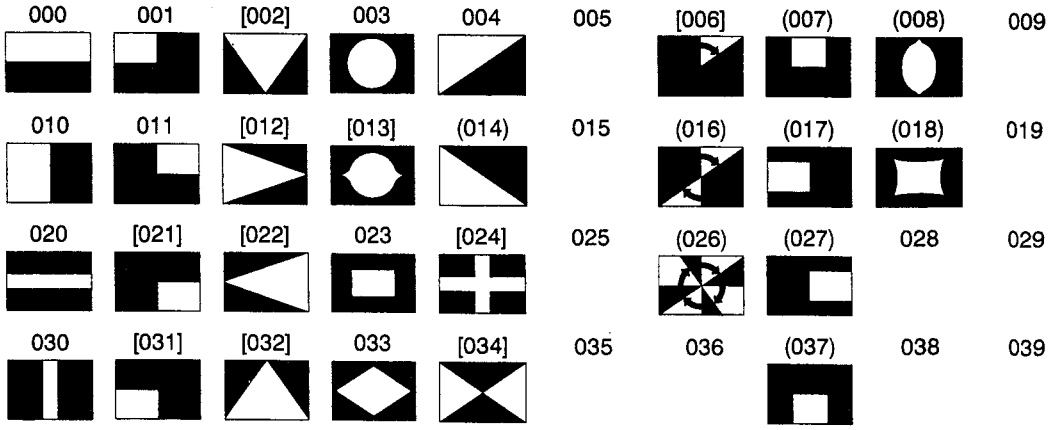


Fig. 6-3 Model 100 exchangeable code

6.4 Operational Restrictions for Wipe Patterns

There are several restrictions in operating wipe patterns

6.4.1 Positioner restrictions

- Round pattern or box pattern cannot be moved completely out of the screen.
- Positioner cannot be used together with PITCH effect.
- Positioner cannot be used for the following patterns. If any of these patterns are selected, positioner's ON button is locked, disabling on-off operation.

Fig. 6-4

6.4.2 PITCH restrictions

- Cannot be used together with positioner. The latter is forcibly turned off. With PITCH kept ON, positioner cannot be turned on.
- PITCH cannot be used for the following patterns. If the wipe numbers including PITCH parameters are specified for these patterns, the wipe patterns take the numbers of normal pattern or reverse pattern. However, the PITCH parameters already specified do not change.

Fig. 6-5

6.4.3 ASPECT restrictions

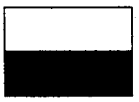
- ASPECT cannot be used for the following patterns. If those patterns are selected with ASPECT on, ASPECT appears to be off on the display, but the ASPECT parameters themselves do not change.

Fig. 6-6

6.5 List of Wipe Numbers

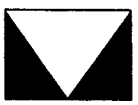
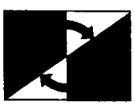
Numbers list in each wipe code scheme is given below. When selecting wipe numbers on video editors, some numbers are not available as described in the "Range of Wipe Numbers".

Table 6-2

Pattern Symbol	Wipe No. : N (Rev. OFF), R (Rev. ON), P (Pitch ON)					
	Standard code		KM-3000 exchangecable		Model 100 exchangecable	
	N	001	N	001	N	010
	R	101	R	101	R	110
	P	201, 301, 401, 501	P	201, 301, 401, 501	P	210, 310, 410, 510
	N	002	N	002	N	000
	R	102	R	102	R	100
	P	202, 302, 402, 502	P	202, 302, 402, 502	P	200, 300, 400, 500
	N	003	N	017	N	030
	R	103	R	117	R	130
	P	203, 303, 403, 503	P	217, 317, 417, 517	P	230, 330, 430, 530
	N	004	N	018	N	020
	R	104	R	118	R	120
	P	204, 304, 404, 504	P	218, 318, 418, 518	P	220, 320, 420, 520
	N	005	N	010	N	004
	R	105	R	110	R	104
	P	205, 305, 405, 505	P	210, 310, 410, 510	P	204, 304, 404, 504
	N	006	N	004	N	011
	R	106	R	104	R	111
	P	206, 306, 406, 506	P	204, 304, 404, 504	P	211, 311, 411, 511
	N	007	N	003	N	001
	R	107	R	103	R	101
	P	207, 307, 407, 507	P	203, 303, 403, 503	P	201, 301, 401, 501
	N	008	N	020	N	023
	R	108	R	120	R	123
	P	208, 308, 408, 508	P	220, 320, 420, 520	P	223, 323, 423, 523
	N	009	N	022	N	003
	R	109	R	122	R	103
	P	209, 309, 409, 509	P	222, 322, 422, 522	P	203, 303, 403, 503
	N	010	N	021	N	033
	R	110	R	121	R	133
	P	210, 310, 410, 510	P	221, 321, 421, 521	P	233, 333, 433, 533

LIST OF WIPE PATTERNS

Pattern Symbol	Wipe No. ! N (Rev. OFF), R (Rev. ON), P (Pitch ON)					
	Standard code		KM-3000 exchangeable		Model 100 exchangeable	
	N	011	N	019	N	024
	R	111	R	119	R	124
	P	211, 311, 411, 511	P	219, 319, 419, 519	P	224, 324, 424, 524
	N	012	N	016	N	034
	R	112	R	116	R	134
	P	212, 312, 412, 512	P	216, 316, 416, 516	P	234, 334, 434, 534
	N	013	N	027	N	006
	R	113	R	127	R	106
	P	—	P	—	P	—
	N	014	N	029	N	026
	R	114	R	129	R	126
	P	—	P	—	P	—
	N	015	N	023	N	013
	R	115	R	123	R	113
	P	215, 315, 415, 515	P	223, 323, 423, 523	P	213, 313, 413, 513
	N	016	N	025	N	018
	R	116	R	125	R	118
	P	216, 316, 416, 516	P	225, 325, 425, 525	P	218, 318, 418, 518
	N	017	N	005	N	021
	R	117	R	105	R	121
	P	217, 317, 417, 517	P	205, 305, 405, 505	P	221, 321, 421, 521
	N	018	N	006	N	031
	R	118	R	106	R	131
	P	218, 318, 418, 518	P	206, 306, 406, 506	P	231, 331, 431, 531
	N	019	N	007	N	027
	R	119	R	107	R	127
	P	219, 319, 419, 519	P	207, 307, 407, 507	P	227, 327, 427, 527
	N	020	N	008	N	017
	R	120	R	108	R	117
	P	220, 320, 420, 520	P	208, 308, 408, 508	P	217, 317, 417, 517

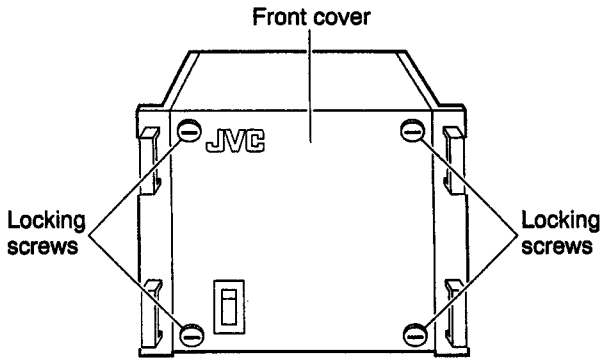
Pattern Symbol	Wipe No. : N (Rev. OFF), R (Rev. ON), P (Pitch ON)					
	Standard code		KM-3000 exchangeable		Model 100 exchangeable	
	N	021	N	009	N	007
	R	121	R	109	R	107
	P	221, 321, 421, 521	P	209, 309, 409, 509	P	207, 307, 407, 507
	N	022	N	026	N	037
	R	122	R	126	R	137
	P	222, 322, 422, 522	P	226, 326, 426, 526	P	237, 337, 437, 537
	N	023	N	011	N	014
	R	123	R	111	R	114
	P	223, 323, 423, 523	P	211, 311, 411, 511	P	214, 314, 414, 514
	N	024	N	012	N	002
	R	124	R	112	R	102
	P	224, 324, 424, 524	P	212, 312, 412, 512	P	202, 302, 402, 502
	N	025	N	013	N	032
	R	125	R	113	R	132
	P	225, 325, 425, 525	P	213, 313, 413, 513	P	232, 332, 432, 532
	N	026	N	014	N	022
	R	126	R	114	R	122
	P	226, 326, 426, 526	P	214, 314, 414, 514	P	222, 322, 422, 522
	N	027	N	015	N	012
	R	127	R	115	R	112
	P	227, 327, 427, 527	P	215, 315, 415, 515	P	212, 312, 412, 512
	N	028	N	028	N	016
	R	128	R	128	R	116
	P	—	P	—	P	—
	N	029	N	024	N	008
	R	129	R	124	R	108
	P	229, 329, 429, 529	P	224, 324, 424, 524	P	208, 308, 408, 508

7. INTERNAL SWITCH SETTINGS FOR SOFTWARE CONTROL

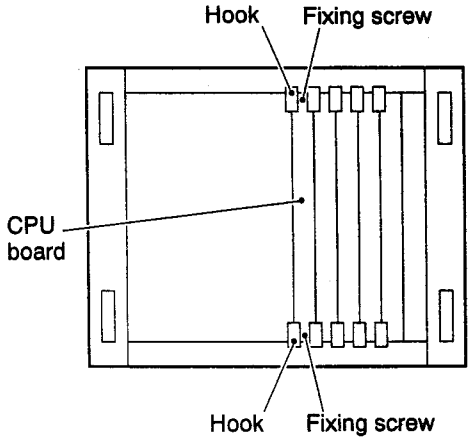
7.1 Main Unit CPU Board

7.1.1 How to take out the CPU board

1) Turn the POWER switch to off.
2) Turn four snap lock screws counterclockwise at an angle of 90 with an ordinary (–) screwdriver, and remove the front cover.



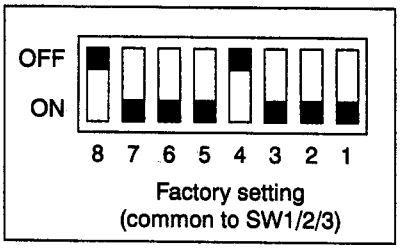
3) Remove two fixing screws on the CPU board.
4) Pull the upper and lower hooks retaining a board toward you at the same time, and then pull the board outward.



7.1.2 SW1/SW2/SW3

These switches are used to set communication parameters for serial communications. Each switch corresponds to a communications connector as shown below.

- SW1 External control connector 1 (TO EDITOR)
- SW2 External control connector 2 (EXTERNAL INTERFACE)
- SW3 Audio interface connector (AUDIO INTERFACE)



Number	Setup items	Remarks (* denotes factory setting)
8	Baud rate	*OFF : 38.4K ON : 9600
7,6	Parity	 7 6 ODD 7 6 EVEN 7 6 *NONE
5	Stop bit	OFF : 2 *ON : 1
4	Select address	*OFF : Accepts only 30 hex as select address ON : Accepts an arbitrary byte as select address
3	Effect address	OFF : Correctly accepts effect address *ON : Ignores effect address
2	Result message	OFF : Returns the appropriate result message *ON : Always returns a positive result message
1	(Currently not in use)	

Description

- **Select address**
  Before initiating communications, an external control unit such as a video editor will send a break and a select address to the unit to be controlled requesting a communication connection. If the select address received matches the unit's own address, it will accept connection by returning a positive answering message. If the addresses do not match, the unit will reject connection by answering negatively. Although the KM-5000's select address is 30 hex, setting this switch to ON allows arbitrary select addresses to be accepted.

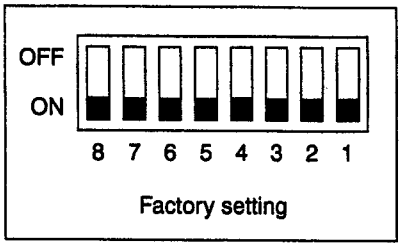
- **Effect address**
  The effect address designates the bus group where the received command is validated. Set this switch to ON if connecting the KM-3000 or a Model 100-compatible video editor to the KM-5000.

- **Result message**
  The KM-5000 main unit returns a result message indicating protocol error when it receives an unspecified command or a parameter outside its range. Set this switch to ON if the external control unit stops operating or behaves erratically in response to a protocol error message. When set to ON, the KM-5000 always returns a result message indicating normal reception even when an unknown command has been received.

  When this switch is set to OFF, the KM-5000 always returns the appropriate message after it has finished processing the command. In situations where internal processing takes longer than usual some external control units may switch to timeout mode and display a message of connection error before the result message has been received. Setting the switch to ON in this case makes timeout less likely to occur because the result message is sent immediately instead of after command processing.

7.1.3 SW4

SW4 controls various wipe pattern setting parameters.



Number	Setup items	Remarks (* denotes factory setting)
8,7	Wipe code system on control unit	8 7 *KM-5000 / 8 7 KM-3000 / 8 7 Model 100
6,5	Wipe code system on ext. control connector 1 (TO EDITOR)	6 5 *KM-5000 / 6 5 KM-3000 / 6 5 Model 100
4,3	Wipe code system on ext. control connector 2 (EXTERNAL INTERFACE)	4 3 *KM-5000 / 4 3 KM-3000 / 4 3 Model 100
2	Reverse code on ext. control connector 1 (TO EDITOR)	OFF : Reverse code invalid *ON : Reverse code valid
1	Reverse code on ext. control connector 2 (TO EXTERNAL INTERFACE)	OFF : Reverse code invalid *ON : Reverse code valid

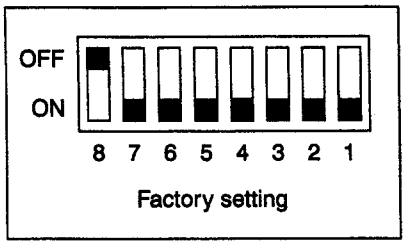
Description

- **Wipe code system**
  See the description of the pattern code system in the List of Wipe Patterns of the instruction book.

- **Reverse code**
  When this switch is set to ON (reverse code valid), reverse wipe patterns can be turned on and off with the reverse numbers. Wipe patterns can be reversed by specifying adding 100 to the number of the normal pattern. This is done from an external control unit.
  When this switch is set to OFF (reverse code invalid), the current reverse mode is given priority. For instance, if a reverse-pattern wipe number is received with the reverse mode off, it is replaced with the number of the normal pattern.
  The corresponding software switch on the Control Unit is always ON and cannot be turned off.

7.1.4 SW5

SW5 is used for setting various other operation parameters.



Number	Setup items	Remarks (* denotes factory setting)
8	Destination	*OFF : PAL ON : NTSC
7	Resume on/off	OFF : Restores all items to their factory settings when power is turned on. *ON : The status at the time power was turned off is re sumed when power is restored.
6	Resume mode	OFF : Reproduces the status of cross point, ME and DSK output sections in the resume mode. However, cross point check cannot be executed on this mode. *ON : Calls out the factory settings of cross point, ME and DSK output sections in the resume mode. Cross point check is valid.
5	Color limit on/off	OFF : Color limiting is not performed. *ON : Color limiting can be performed to prevent creation of any unspecified color.
4	Keying mode	OFF : Gain is mostly applied to clip level. *ON : Gain is applied at levels higher than clip level.
3	MI-F30 connection on/off	OFF : Sends no command to MI-F30 *ON : Sends a command to MI-F30
2	(Currently not in use)	
1	(Currently not in use)	

7.1.5 SW9

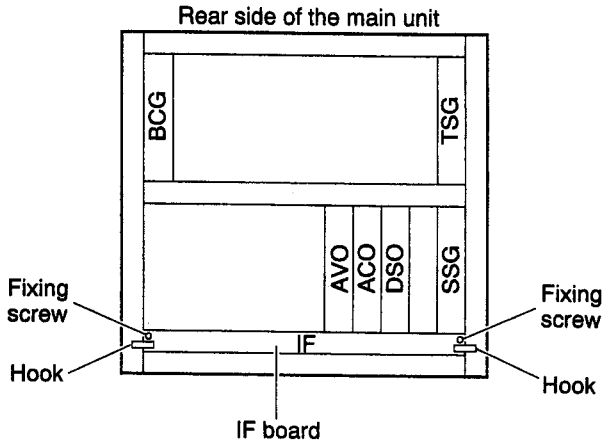
Do not change the position of SW9. This switch is only for use when a Z80 emulator (ICE) is connected.

At factory : All OFF
With the emulator connected : Only SW9-3 ON

7.2 Main Unit IF Board

7.2.1 How to take out the IF board

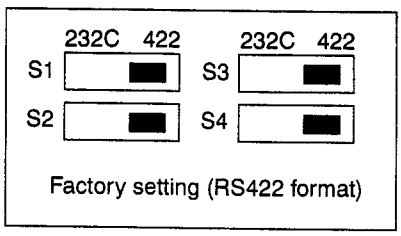
1) Turn the POWER switch to off.
2) Remove two fixing screws on the IF board.
3) Pull the right and left hooks retaining a board toward you at the same time, and then pull the board outward.



7.2.2 S1/2/3/4

S1/2/3/4 control the settings of communication equipment hardware connected to the Main Unit.

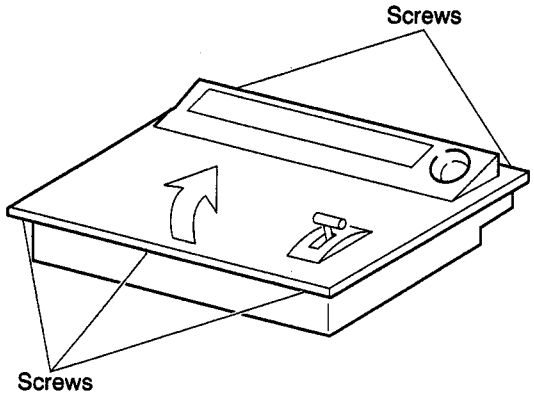
- S1 Control panel
- S2 Ext. control connector 1 (TO EDITOR)
- S3 Audio interface connector (AUDIO INTERFACE)
- S4 Ext. control connector 2 (EXTERNAL INTERFACE)



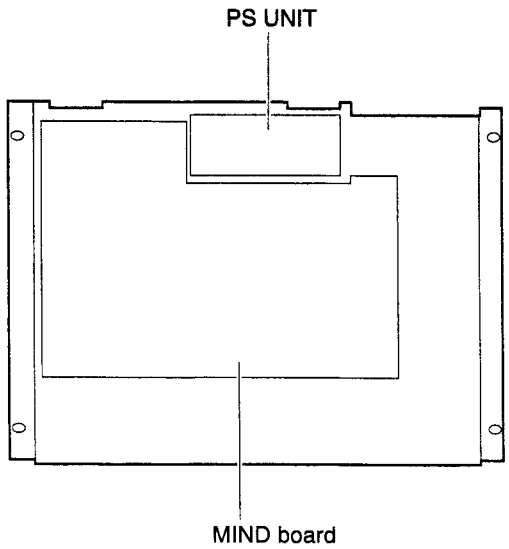
7.3 MIND Board in the Control Panel

7.3.1 How to open the control panel

1) Turn off the POWER switch of the control unit.
2) Remove five screws from both sides and open the panel in the direction of the arrow.



3) The MIND board is located at bottom side.



7.3.2 SW2

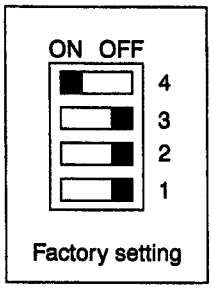
Do not change the position of SW2. This switch is only for use when a Z80 emulator (ICE) is connected.

At factory : All OFF

With the emulator connected : Only SW2-2 ON

7.3.3 SW3

SW3 is used to set various control unit operation parameters.



Number	Set items	Remarks (* denotes factory setting)
4	Communications mode	OFF : Full duplex communications *ON : H duplex communications
3	Baud rate	*OFF : 38.4K ON : 9600
2	System operation	*OFF : System mode ON : Single operation mode
1	(Currently not in use)	

Description

- **System operation**

In system operation mode, the control panel periodically checks the connection with the main unit. If the main unit loses power or the cable is disconnected, warning messages are shown on the control panel display and an attempt is made to restore the connection. When power is turned on, the control panel establishes communications with the main unit to implement control panel settings. Once in system operation mode, no operation can be executed unless the main unit is properly connected.

In single operation mode, the control unit is able to function without being connected to the main unit. This mode is used when explaining or demonstrating operation of the separate control panel, as well as for operation checks of the external control connectors (TO EDITOR, EXTERNAL INTERFACE and AUDIO INTERFACE). In the single operation mode, video lines near the V blanking signal may be disturbed because commands are not sent in sync with the operation of the main unit. Use of this mode should be limited to demonstration or checking.

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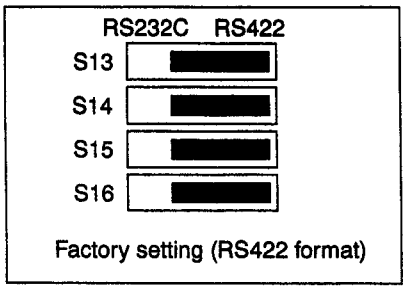
7.3.4 SW13/14/15/16

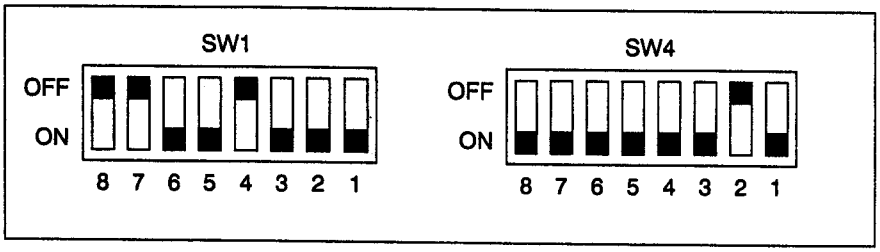
Used to set the communications hardware standard on the control unit and the main unit. All switches must be set at the same positions.



Factory setting (RS422 format)

7.4 Setup examples for connection with a video editor

7.4.1 BVE-910/900 (SONY)



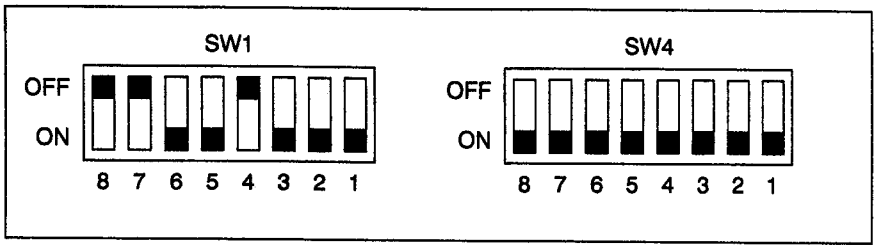
• Hardware standard (IF board S2)	RS422
• Baud rate (SW1-8)	38.4Kbps
• Parity (SW1-7,6)	ODD
• Stop bit (SW1-5)	1
• Select address (SW1-4)	30hex
• Effect address (SW1-3)	To be ignored
• Result message (SW1-2)	Always positive
• Wipe reverse code (SW4-2)	Invalid

Operational limit

1) Selectable cross points are from BLACK (0) to channel 9
2) Execution of keys other than the pattern key (i.e., luminance key, chroma key and EXT key) must be explicitly specified with the SOURCE button on the control panel. This is necessary because the editor does not explicitly specify which key is to be executed.
3) BKGD + KEY effect at NEXT TRANSITION is not possible because it is not supported by the editor.
4) BKGD exchange behind the selected M/E key is not possible. This is because the key is forcibly undone by the ALL STOP command sent from the editor.
5) M/E effect with DSK ON is not available. This is because DSK is forcibly undone by the ALL STOP command sent from the editor.

3) to 5) are possible when operated directly from the control unit between the start of preroll and entering of the IN point.

7.4.2 RM-G870 (JVC)



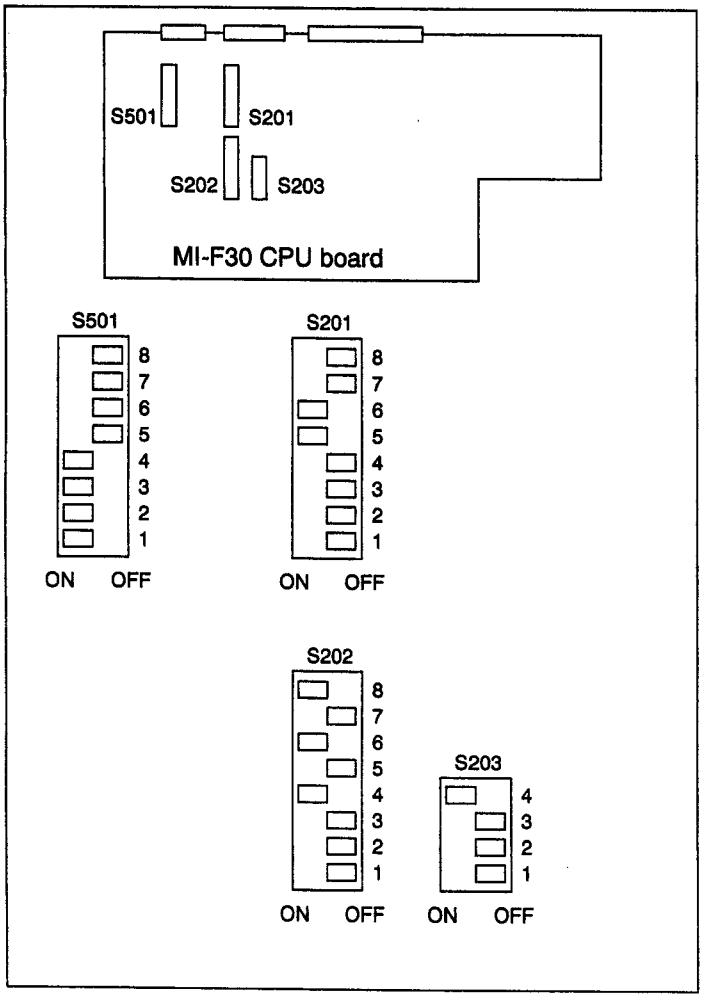
- Hardware standard (IF board S2) RS422
- Baud rate (SW1-8) 38.4 Kbps
- Parity (SW1-7, 6) ODD
- Stop bit (SW1-5) I
- Select address (SW1-4) 30 hex
- Effect address (SW1-3) To be ignored
- Result message (SW1-2) Always positive
- Wipe reverse code (SW4-2) Valid

Operational limit

1) Selectable cross points are from BLACK (0) to channel 9

7.5 Connection with MI-F30

When connecting the MI-F30, internal switches must be set as indicated below. The DIP switches on the KM-5000 (SW3 on the main unit CPU board and S3 on the IF board) may be left at the factory settings. Make sure to use the version 1.03 or later as the software of the MI-F30.



Major setting items

• Hardware standard (S501)	RS422 (factory setting)
• Effect address (S201-8...2)	30 hex (factory setting)
• Operational mode (S202-8)	Editor mode
• Effect address (S202-7)	To be ignored (factory setting)
• Service mode (S202-6)	ON (communicable without sending a break)
• Frame (S202-4)	PAL (factory setting)
• Baud rate (S203)	38.4 Kbps

Use the factory setting for other setting items.

8. SPECIFICATIONS

General

Power requirement	MAIN UNIT	230V to 240V	AC±10%	50/60Hz
	CONTROL UNIT	100V to 240V	AC±10%	50/60Hz
Power consumption	MAIN UNIT	max. 270W		
	CONTROL UNIT	max. 30W		
Operating temperature	+5°C to +40°C			
Humidity(relative)	10% to 90% (non–condesing)			
Weight	MAIN UNIT	30 kg		
	CONTROL UNIT	7.3 kg		
Dimension (W x H x D)	MAIN UNIT	482 mm x 456.5 mm x 563 mm		
	CONTROL UNIT	482 mm x 135.5 mm x 355 mm		

Video System

Television standard	625/50
Digital video paths	8-bit resolution
Digital key paths	8-bit resolution
Digital mixer	10-bit x 9-bit mixer with 18-bit precision; dither added to round to 8 bit out
Overall delay input/program output	3 line <delay <4 line 5 line <delay <6 line (using KM-BK5002)
Signal processing video	4 : 2 : 2 in conformity with CCIR601

Inputs

12 primary video inputs	*Analog component (option) Y 1.0V(p-p) Pb 0.7V(p-p)] EBU standard level, BNC x3, 75 ohm Pr 0.7V(p-p) *Parallel digital (option) CCIR-656 parallel D-sub 25pin x1 *Seriall digital (option) CCIR-656 serial component BNC x1, 75 ohm *Analog composite (option) PAL-VBS 1.0V(p-p) BNC x1, 75 ohm
6 external key inputs	*Analog key VS 1V(p-p) or KEY 0.7V(p-p) and sync 0.3 – 4.0V(p-p) (switchable) BNC x2, 75 ohm *Parallel digital (option) CCIR-656 parallel D-sub 25pin x1 *Serial digital (option) CCIR-656 serial component BNC x1, 75 ohm
Autophasing range	+62.5μs(delay)/–64.0μs(advance)
Gen-lock	Composite analog B. B 0.45V(p-p) ±30% 75 ohm or loop through, BNC x2

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Outputs

Program output
(3 slots available for PGM)

Analog component (standard)
Y 1.0V(p-p) ┐
Pb 0.7V(p-p) ├ EBU standard level
Pr 0.7V(p-p) ┘
BNC x6, 75 ohm, 2 outputs per 1 module
Serial digital (standard)
CCIR-656 serial, 75 ohm, BNC x3, 3 outputs per 1 module
Parallel digital (option)
CCIR-656 parallel, D-sub 25pin x2, 2 outputs per 1 module

Preview output

Analog composite (standard)
VBS 1.0V(p-p) 75 ohm, BNC x2, 2 outputs per 1 module

Key output (option)

Analog	Y 1.0V(p-p) 75 ohm BNC x1
	or
Serial digital	CCIR-656 serial, 75 ohm, BNC x3
	or
Parallel digital	CCIR-656 parallel, D-sub 25pin x2

Aux-1, -2 outputs (option)

Analog component
Y 1.0V(p-p) ┐
Pb 0.7V(p-p) ├ EBU standard level
Pr 0.7V(p-p) ┘
BNC x6, 75 ohm, 2 outputs per 1 module
or
Seriall digital CCIR-656 serial, 75 ohm, BNC x3 3 outputs per 1 module
or
Parallel digitalCCIR-656 parallel, D-sub 25pin x2, 2 outputs per 1 module

Black burst

0.45V(p-p) 75 ohm BNC x3

Interface

12 tally outputs

Dry contact or voltage supply (selectable) terminal

4 GPI input

TTL with optocoupler control for M/E,DSK,FTB,
KEY PRIORITY EXCHANGE

4 serial comunication ports

Control unit	RS-422 or RS-232C D-sub 9pin
Editor	RS-422 or RS-232C D-sub 9pin
Audio	RS-422 or RS-232C D-sub 9pin
External	RS-422 or RS-232C D-sub 9pin

Analog component inputs/output

Frequency response

Y: 100kHz to 5.75MHz ±0.5dB
Pb/Pr: 100kHz to 2.75MHz ±0.5dB

S/N (p-p/rms)

Y: 56dB (200kHz ~ 5MHz)

Y/Pb timing

Less than 20ns

Optional module

Analog component input module KM-BK5001
Analog composite input module KM-BK5002
Serial digital input module KM-BK5003
Parallel digital input module KM-BK5004
Analog key input module KM-BK5005
Analog component output module KM-BK5011
Analog composite output module KM-BK5012
Serial digital output module KM-BK5013
Parallel digital output module KM-BK5014
Analog key output module KM-BK5015

Accessories

Comunication cable	SCV1423-10M	x 1
Termination Plug	SCV0286-001	x 1
Power cable	QMP4908-250	x 2
Title sheet	SC31117-001	x 1

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